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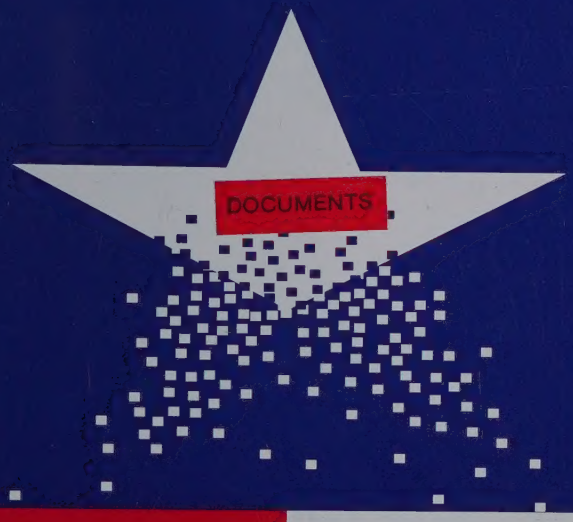
November 1996

MONTHLY LABOR REVIEW

U.S. Department of Labor

Bureau of Labor Statistics



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The *Monthly Labor Review* is published by the Bureau of Labor Statistics of the U.S. Department of Labor. Communications on editorial matters should be addressed to the Editor-in-Chief, *Monthly Labor Review*, Bureau of Labor Statistics, Washington, DC 20212. Phone (202) 606–5900.

Subscription price per year—$29 domestic; $36.25 foreign. Single copy—$7.50 domestic; $9.38 foreign. Subscription prices and distribution policies for the *Monthly Labor Review* (ISSN 0098-1818) and other Government publications are set by the Government Printing Office, an agency of the U.S. Congress. Send correspondence on circulation and subscription matters (including address changes) to:
Superintendent of Documents
Government Printing Office
Washington, DC 20402

Make checks payable to Superintendent of Documents.

The Secretary of Labor has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Second-class postage paid at Washington, DC, and at additional mailing addresses.

Information from the *Monthly Labor Review* is available to sensory impaired individuals upon request.
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Cover design by Keith Tapscott.

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119/11

MONTHLY LABOR
REVIEW

November 1996 Volume 119, Number 11

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The November *Review*

National trends are important, but an appreciation of local developments is vital to fully understanding our dynamic economy. In this issue, we present William G. Deming's analysis of the changing economic fortunes of the States and regions. His description of six distinct patterns of State-by-State response to the most recent business cycle is particularly interesting. Donald Lyons and Bill Luker, Jr., take a different cut at the local scene. Looking deep into the heart of Texas' high-tech development over the period 1988 to 1994, they find that the State's growing employment in R&D-intensive industries is still heavily concentrated in oil and chemicals, but has been diversifying into electronics and engineering services.

Advancing technology is making it more and more plausible for people to engage in work for pay in their own homes. Linda N. Edwards and Elizabeth Field-Hendrey use microdata from the 1990 census to investigate the characteristics of the roughly 1–2 percent of the employed that they define as home-based. Home-based workers were more likely to be self-employed, female, and engaged in service industries and occupations.

In other articles, Tyler D. Hartwell and his colleagues update our knowledge of the prevalence of drug testing at work, Alexander Kronemer analyzes industry productivity trends through 1994, and John Stremlau adds Bangalore, India, and its growing software industry to our series of international reports. This month, we introduce a "Communications" department to share with you comments we receive on articles appearing in the *Review*. John Roberts, Support Services for Collective Bargaining/Litigation, and Kathleen MacDonald, Assistant Commissioner of the Bureau of Labor Statistics, correspond on the issue of public-private compensation (May 1996 *Review*).

Traveling economy

Thanksgiving is one of the most heavily traveled of all the major holidays. This year, the American Automobile Association estimated that over 32 million travelers would be taking to the roads, rails, and air corridors during the Thanksgiving season. A broader question for readers of this *Review* is the reflection of travel in employment figures and other economic statistics. Timothy Schiller, writing in the September-October issue of the Federal Reserve Bank of Philadelphia *Business Review* estimates that travel and tourism adds up to a $400 billion industry that employs about 5 percent of the American work force.

Schiller's figures show that visits to family and friends are indeed the most common purposes for traveling and that more than 60 percent of travel is for these visits or for business. It is perhaps coincidental, then, that his research also finds that the six States in which domestic travel spending is the highest share of gross State product—Nevada, Hawaii, Florida, Montana, Vermont, and Wyoming—are also popular destinations for sun, surf, snow skiing, and other diversions. Schiller decorously proposes that States at the top of the list are those where many visitors stay for several days and the tourist season is year-round.

New job skills

The computer is the icon of the New Economy and an important tool for the new work force. According to Richard J. Murnane's seminar report in the summer issue of the Jerome Levy Economics Institute *Summary*, working with computers is one of the "new basic skills" that matter most to firms employing large numbers of high school graduates.

But is working with computers the most important of these new requirements? Not according to a survey of firms in four major metropolitan areas by Professor Harry Holzer of the University of Michigan. According to a summary of his findings that appeared in an article by Richard Mattoon and William A. Testa in the November *Chicago Fed Letter*, customer contact was the most frequently required daily task performance. Computer tasks ranked fourth behind reading or writing paragraphs and doing arithmetic.

Murnane also counted effective communication as one of the New Basics. But, oddly enough, he also found that the firms in his sample only expected new high school graduates to be able to read and do math at a ninth-grade level.

Cost and quality

The value of quality changes for a sample of 1997 model domestic passenger cars included in the Producer Price Index averaged $155.74, according to estimates by the Bureau of Labor Statistics. This change represents 45.9 percent of the average $339.36 yearly increase in producers' prices.

The retail equivalent of these quality changes was $185.53, or 55.7 percent of the yearly increase in manufacturers' suggested list prices. The $185.53 breaks down as follows:

- $20.76 for changes in accordance with all 1990 Clean Air Act Amendments.
- $9.11 for changes in accordance with Federal Motor Vehicle Safety Standard (FMVSS) 214, side impact protection.
- $155.66 for other quality changes such as powertrain improvements, corrosion protection upgrades, and changes in levels of standard or optional equipment.

The December *Review*

Next month's *Review* will be a special issue on the improvements planned for the Consumer Price Index (CPI).

A decade of economic change and population shifts in U.S. regions

Regional 'fortunes,' as measured by employment and population growth, shifted during the 1983–95 period, as the economy restructured, workers migrated, and persons immigrated to the United States

William G. Deming

Between 1983 and 1990, the United States experienced one of its longest periods of economic expansion since the Second World War. After a brief recession during 1990–91, the economy resumed its expansion, and has continued to improve. The entire 1983–95 period also has been a time of fundamental economic change in the Nation. Factory jobs have declined in number, while service-based employment has continued to increase. As we move from an industrial to a service economy, States and regions are affected in different ways.

While commonalties exist among the States, the economic events that affect Mississippi, for example, are often very different from the factors which influence California. This article examines the economic fortunes of the individual States between 1983 and 1995. The first part of the article examines employment growth within the States, using a shift-share analysis. Next, because State employment growth often goes hand-in-hand with population growth, these two variables are examined in combination. Finally, several key issues related to regional economic growth over the last decade are discussed.

Shift-share analysis

One technique that often is used to measure employment changes at the State or regional level is shift-share analysis. As applied in this article, shift-share analysis decomposes State employment growth into three components: national share, industry mix, and State employment share. The national share component shows the proportion of total employment change that is due simply to overall employment growth in the U.S. economy. That is, it answers the question: "What would employment growth in State 'X' have been if it had grown at the same rate as the Nation as a whole?" The industry mix component indicates the amount of employment change attributable to a State's unique mix of industries. For example, a State with a relatively high proportion of employment in a fast-growing industry, such as services, would be expected to have faster employment growth than a State with a relatively high proportion of employment in a slow-growing or declining industry such as manufacturing. The third effect, State employment share, shows whether the industries within a State performed better or worse than the same industries on a nationwide basis.[1]

Analyses of this sort typically aggregate employment data into census regions and divisions rather than considering individual States. This has not been done in this case primarily because these divisions are largely arbitrary, being based mainly on the geographic proximity of the States. While there no doubt can be economic similarities between adjacent States, there are, in many cases, at least as many dissimilarities.[2] For example, it may make sense to combine Vermont and New Hampshire for analytical purposes, but the economies of Louisiana and Arkansas are driven to a large extent by different factors.

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The argument also can be made that even individual States are no more than a collection of possibly dissimilar sub-State areas. However, it would be extremely cumbersome to examine every sub-State area. Also, individual States are generally viewed as economic units for administrative and governmental purposes. Even at the State level, it is not practical to analyze the data for each industry in each State in detail, so only State-level totals are shown in this article.[3]

Table 1 summarizes the results of the shift-share analysis. The national share component is most usefully viewed in relation to the actual total employment growth for each State. If, for example, total State employment growth is greater than its national share component (indicated by a value greater than 100.0 in column 3 of table 1), then employment in that State grew at a rate greater than the national average over the period. (Put another way, an index of greater than 100.0 means that part of the State's job growth is not explained by overall national employment growth.) Those States with the lowest actual rates of employment growth relative to the overall national rate were generally concentrated in the Northeast and in the "oil patch" (namely, Alaska, Idaho, Louisiana, Oklahoma, Texas, and Wyoming), although employment in Texas grew at about the same rate as the Nation as a whole between 1983 and 1995. States in the West (except California), the Midwest, and the Southeast grew at rates well above the national average.

The States that showed the poorest performance in terms of their industry mix statistic were concentrated in the South and the Midwest.[4] However, it was not simply a case of the States with the highest concentration of manufacturing jobs being the hardest hit, as one might expect. While North Carolina, the State with the highest initial proportion of factory jobs, did have the worst industry mix component, two of the States with the worst industry mixes, Oklahoma and Texas, owed their poor performances to declines in the oil and gas component of the mining industry.[5] Neither had a large proportion of manufacturing jobs in 1983.

Even more interesting is the fact that several States that did have high concentrations of manufacturing jobs in 1983 did not have poor industry mix statistics. The Northeastern States provide the best examples. Connecticut, which owed nearly 28 percent of its jobs in 1983 to manufacturing, had only a mildly negative industry mix, mostly because its large proportion of jobs in the fast growing services industry offset its concentration of factory—jobs.

The State employment share component in most cases provides a better explanation of employment growth (or decline) than the industry mix. The employment share component shows how well the industries within a State performed relative to the national average performance for those industries.[6] In effect, it furnishes a measure of comparative advantage. To examine the employment share statistics for each of the States in relative terms, we compute a share index for each State and industry.[7] The index shows the performance of an industry within a particular State relative to the national average for that industry. An index value of less than one indicates below-average growth, while an index of greater than

Table 1. Components of employment change, 1983–95

[Numbers in thousands]

State	Total State growth	National share		Industry mix	State employment share
		Total	State growth / national share		
Alabama	474.70	390.50	121.56	-49.93	134.12
Alaska	47.77	62.98	75.85	.29	-15.50
Arizona	705.20	316.74	222.64	19.76	368.70
Arkansas	327.30	217.85	150.24	-24.71	134.16
California	2,516.20	2,914.61	86.33	138.27	-536.69
Colorado	512.13	390.03	131.30	11.17	110.92
Connecticut	120.06	424.42	28.29	-17.36	-286.99
Delaware	100.10	78.20	128.00	-3.57	25.47
Florida	2,095.00	1,147.71	182.54	171.37	775.92
Georgia	1,137.00	669.89	169.73	-40.74	507.85
Hawaii	126.50	119.37	105.97	24.57	-17.44
Idaho	158.90	93.42	170.09	-1.12	66.59
Illinois	1,067.74	1,331.44	80.19	27.48	-291.18
Indiana	751.17	596.42	125.95	-63.88	218.62
Iowa	316.70	305.75	103.58	5.61	5.34
Kansas	279.20	270.84	103.09	-8.87	17.24
Kentucky	490.90	338.63	144.96	-32.71	184.97
Louisiana	209.30	459.98	45.50	-19.95	-230.72
Maine	116.60	124.90	93.36	-6.33	-1.97
Maryland	456.90	506.67	90.18	62.08	-111.85
Massachusetts	277.90	792.44	35.07	51.22	-565.75
Michigan	1,028.90	947.20	108.63	-52.21	133.92
Minnesota	655.67	505.00	129.84	17.95	132.72
Mississippi	282.33	232.99	121.18	-33.00	82.34
Missouri	583.37	569.24	102.48	7.21	6.92
Montana	74.70	81.11	92.10	4.67	-11.08
Nebraska	204.56	179.50	113.96	10.52	14.54
Nevada	386.30	118.37	326.34	52.30	215.62
New Hampshire	129.40	120.34	107.53	-5.37	14.42
New Jersey	440.70	930.15	47.38	10.64	-500.09
New Mexico	210.23	140.91	149.19	2.85	66.47
New York	558.03	2,149.21	25.96	192.99	-1,784.18
North Carolina	1,035.50	710.95	145.65	-126.81	451.36
North Dakota	51.50	73.65	69.93	7.17	-29.31
Ohio	1,139.67	1,202.69	94.76	-51.36	-11.66
Oklahoma	143.04	344.01	41.58	-40.10	-160.87
Oregon	450.07	284.09	158.42	.81	165.17
Pennsylvania	724.03	1,329.59	54.46	2.81	-608.37
Rhode Island	44.30	116.46	38.04	-3.11	-69.06
South Carolina	459.20	349.42	131.42	-56.72	166.50
South Dakota	109.13	69.15	157.82	6.65	33.33
Tennessee	783.70	505.17	155.13	-42.86	321.39
Texas	1,833.62	1,820.16	100.74	-99.61	113.07
Utah	341.50	166.60	204.98	-2.70	177.60
Vermont	63.90	60.66	105.35	1.60	1.65
Virginia	861.20	648.56	132.79	3.12	209.52
Washington	762.17	466.12	163.51	16.11	279.95
West Virginia	105.30	171.12	61.53	-30.20	-35.62
Wisconsin	687.57	548.76	125.30	-21.27	160.08
Wyoming	17.60	59.51	29.57	-13.78	-28.13

one indicates growth that was better than the average for all States in that industry.[8] Table 2 shows the all-industries share index for each State during the 1983–95 period, as well as for the 1983–90, 1990–91, and 1991–95 subperiods because they approximate upward and downward trends in the national business cycle. The indexes for individual industries were calculated, but are not shown on a State-by-State basis because of space constraints. At the extremes for the entire 1983–95 period, Nevada and Arizona fared the best using this measure, New York and Connecticut, the worst.

Some States appear to have performed consistently over the entire period, while others' fortunes have changed rather dramatically.[9] A good contrast is furnished by those States that have large oil production industries and States in the Northeast. The industries in Wyoming and Louisiana, for example, both fared poorly during the 1983–90 period when the country was experiencing a long expansion. This can be largely attributed to the "oil bust" of the mid–1980s, which disrupted the economies of all the States that were dependent on oil production. After 1990, by contrast, industries in these two States (and the other "oil States" as well) performed quite well in comparison to the rest of the country. Similarly, the industries in Texas, whose employment grew substantially more slowly than the national average over the 1983–90 period, outperformed the rest of the Nation in each of the periods after 1990 by this measure.

The Northeastern States have not shown this kind of resilience. New York, for example, had the worst overall share index. With the exception of mining (a very minor industry in New York), employment in all major industry groups grew at rates substantially less than the national average over all periods examined. Massachusetts and Rhode Island had similar industry growth patterns. Most of the States in this area of the country fared poorly in relative terms.

At the other end of the spectrum (and the country) are the States of the Mountain West. Nevada, Arizona, Utah, Idaho, and Washington make up 5 of the top 7 States in terms of their relative job gains as measured by the share index. In all but one of these States, employment gains were strong in nearly every industry. The exception to this, Idaho, was below average in mining; transportation, communication, and public utilities; and finance, insurance, and real estate. However, it was well above average in the other major industries; manufacturing employment grew 38 percent faster in Idaho than in the Nation as a whole. Even in the transportation, communication, and public utilities and finance, insurance, and real estate industries, Idaho was below average during the 1983–90 period. In the years after 1990, employment growth in both these industry groups was well above the national average.

Florida, another State in the top seven, along with several other southeastern States, also made very strong job gains, with most of these occurring during the 1983–90 period. In both periods after 1990, Florida's share index was slightly below the national average for the goods-producing industries and slightly above average in the service-producing industries. While still the pacesetter in the Southeast, Florida is no longer carrying its neighboring States. All of the South Atlantic States had overall share indexes above the national

Table 2. Share index for nonfarm payroll employment by State, 1983–95

State	1983–95			
	Total	1983–90	1990–91	1991–95
Alabama	1.049	1.017	1.016	1.016
Alaska	.945	.918	1.032	.998
Arizona	1.279	1.136	1.018	1.106
Arkansas	1.114	1.029	1.026	1.055
California	.969	1.041	1.001	.930
Colorado	1.071	.946	1.028	1.101
Connecticut	837	.928	.969	.930
Delaware	1.063	1.079	.995	.990
Florida	1.187	1.139	.995	1.048
Georgia	1.158	1.084	.994	1.076
Hawaii	1.014	1.074	1.033	.914
Idaho	1.159	1.000	1.047	1.108
Illinois	.955	.964	1.001	.990
Indiana	1.059	1.026	1.006	1.026
Iowa	1.008	.973	1.022	1.014
Kansas	1.007	.975	1.018	1.013
Kentucky	1.102	1.054	1.015	1.030
Louisiana	.876	.839	1.027	1.017
Maine	.985	1.039	.971	.976
Maryland	.978	1.040	.979	.960
Massachusetts	.853	.914	.957	.975
Michigan	1.020	1.017	.992	1.010
Minnesota	1.068	1.022	1.017	1.027
Mississippi	1.048	.976	1.013	1.060
Missouri	1.006	1.000	.997	1.009
Montana	.982	.890	1.034	1.068
Nebraska	1.031	.987	1.025	1.020
Nevada	1.514	1.273	1.025	1.161
New Hampshire	1.017	1.025	.960	1.033
New Jersey	880	.948	.974	.953
New Mexico	1.112	1.000	1.021	1.089
New York	.832	.927	.972	.923
North Carolina	1.104	1.064	.997	1.040
North Dakota	.932	.876	1.030	1.032
Ohio	.988	.985	.999	1.004
Oklahoma	.868	.844	1.025	1.004
Oregon	1.133	1.065	1.010	1.053
Pennsylvania	.897	.944	.995	.955
Rhode Island	.859	.940	.945	.966
South Carolina	1.071	1.073	.991	1.007
South Dakota	1,131	1,013	1,039	1.074
Tennessee	1.125	1.054	1.008	1.060
Texas	1.002	.946	1.023	1.035
Utah	1.238	1.054	1.042	1.127
Vermont	1.012	1.030	.978	1.004
Virginia	1.075	1.084	.988	1.003
Washington	1.144	1.116	1.028	.997
West Virginia	.913	.894	1.010	1.011
Wisconsin	1.057	1.013	1.017	1.026
Wyoming	.840	.810	1.035	1.002

Table 3. Population change by State, 1983–95

State	1983–95			1983–90			1990–95		
	Total (thousands)	Percent change	Average annual growth rate	Total (thousands)	Percent change	Average annual growth rate	Total (thousands)	Percent change	Average annual growth rate
Alabama	342	12.1	1.0	169	6.0	0.9	173	5.8	1.2
Alaska	80	24.1	1.8	42	12.5	1.9	39	10.3	1.8
Arizona	866	40.1	2.9	514	23.8	2.9	352	13.2	2.2
Arkansas	163	9.8	.8	63	3.8	.6	100	5.8	1.1
California	4,063	21.7	1.7	3,211	17.1	2.2	852	3.9	.9
Colorado	479	21.0	1.6	137	6.0	1.0	343	14.1	2.3
Connecticut	84	3.5	.3	144	6.0	.7	–61	–2.4	–.4
Delaware	93	21.0	1.6	59	13.2	1.8	35	6.9	1.4
Florida	2,481	29.8	2.2	1,718	20.7	2.7	763	7.6	1.6
Georgia	1,172	28.6	2.1	656	16.0	2.1	517	10.9	2.0
Hawaii	143	19.4	1.5	98	13.4	1.8	44	5.3	1.3
Idaho	148	22.2	1.7	32	4.8	1.0	117	16.7	2.9
Illinois	404	4.9	.4	209	2.5	.4	195	2.3	.5
Indiana	386	9.8	.8	189	4.8	.7	197	4.8	1.0
Iowa	24	1.2	.1	–33	–1.6	–.2	57	2.8	.5
Kansas	102	5.7	.5	47	2.7	.3	54	3.0	.5
Kentucky	228	8.6	.7	87	3.3	.5	140	5.1	1.0
Louisiana	45	1.5	.1	–50	–1.6	–.2	95	3.2	.6
Maine	101	12.2	1.0	89	10.6	1.3	13	1.4	.4
Maryland	564	17.6	1.4	413	12.9	1.7	151	4.2	.9
Massachusetts	231	5.2	.4	255	5.8	.6	–24	–.5	–.1
Michigan	537	8.3	.7	360	5.5	.7	177	2.6	.6
Minnesota	358	11.9	.9	205	6.8	.9	153	4.8	.9
Mississippi	162	9.2	.7	71	4.0	.6	91	4.9	1.0
Missouri	306	8.4	.7	174	4.8	.6	132	3.5	.7
Montana	53	9.1	.7	–5	–.8	.1	58	10.0	1.6
Nebraska	45	3.9	.3	2	.2	.1	43	3.7	.7
Nevada	464	69.4	4.5	234	35.1	4.6	229	25.4	4.8
New Hampshire	146	20.7	1.6	128	18.1	2.0	19	2.2	.5
New Jersey	370	6.6	.5	318	5.7	.7	52	.9	.2
New Mexico	217	22.4	1.7	99	10.2	1.5	118	11.1	2.0
New York	353	2.7	.2	481	3.6	.4	–128	–.9	–.1
North Carolina	920	20.6	1.6	554	12.4	1.7	366	7.3	1.4
North Dakota	–13	–2.7	–.2	–18	–3.6	–.6	4	.9	.2
Ohio	485	6.2	.5	280	3.6	.5	205	2.5	.6
Oklahoma	17	.7	.1	–77	–3.2	–.3	94	4.1	.7
Oregon	401	20.6	1.6	173	8.9	1.4	227	10.7	2.0
Pennsylvania	267	3.0	.2	202	2.3	.3	65	.7	.2
Rhode Island	25	3.5	.3	52	7.1	.8	–27	–3.4	–.5
South Carolina	412	17.8	1.4	263	11.3	1.6	149	5.8	1.3
South Dakota	29	5.8	.5	3	.7	.2	25	5.1	.9
Tennessee	531	15.5	1.2	257	7.5	1.1	274	7.5	1.4
Texas	2,181	19.6	1.5	1,000	9.0	1.3	1,181	9.7	1.8
Utah	280	28.1	2.1	106	10.6	1.6	174	15.8	2.8
Vermont	55	14.4	1.1	39	10.3	1.3	16	3.7	.9
Virginia	878	21.3	1.6	568	13.8	1.8	310	6.6	1.3
Washington	857	27.1	2.0	444	14.1	2.0	412	11.5	2.2
West Virginia	–5	–.3	.0	–55	–3.9	–.4	51	3.7	.7
Wisconsin	330	9.6	.8	160	4.6	.7	170	4.7	.9
Wyoming	–5	–1.5	–.1	–32	–9.0	–1.0	26	8.3	1.2

SOURCE: U.S. Bureau of the Census.

average after 1991, although the relative gap in the rate of industry employment growth between this region and the Nation as a whole has narrowed in recent years.

California, Hawaii, and Maryland represent a different scenario. After employment growth continued through the latter part of the 1980s for these States, it fell well below the national average following the 1990–91 recession. While different factors affect the industries in each of these States, one

that they have in common is that all are recipients of large amounts of Federal defense dollars. Obviously, the economies of these States are diverse, but the decline in military spending has had a noticeable effect on their overall performance. Several industries in the New England States also experienced substantial declines in defense spending.

Business cycle analysis

While the shift-share analysis used in the previous section is a valuable tool in the analysis of comparative economic performance of States, it has some limitations. One of these is that it uses a point-to-point perspective. That is, the differences between time A and time B can be investigated in detail, but what happens over time between those points is not apparent.[10] Another limitation is that this analysis does not directly account for shifting populations. In comparing the labor market performance of one State or region to the country as a whole, it is helpful to look not just at changes in employment levels, but also at shifts in population. After all, if total employment in a State was growing at an annual rate of 2 percent, but the population was growing at a rate of 3 percent, an assessment of its labor market would be quite different than if population was increasing by only 1 percent. Migration has had a profound effect on the economies of many States over the last decade and especially since 1990. The following analysis attempts to address these shortcomings by examining the employment changes in the States using monthly employment data and introducing a population component to the analysis of the 1983–95 time period.

Migration. Employment growth is closely tied to population growth. Table 3, which lists population growth by State, shows how different areas of the country have experienced widely varying patterns of population change.

As people move into a region, the demand for goods and services increases, leading to more jobs for people who produce those goods and services. Chart 1 illustrates relative population growth by State between July 1983 and July 1995. This map reveals an obvious population shift from the northeastern and midwestern States to the West and South, continuing a trend that began decades ago. This does not tell the whole story, however. If one divides migrants into those moving from State to State and those entering the United States from foreign countries, quite a different picture emerges.[11] Several States, notably New York, New Jersey, Illinois, Florida, Texas, and especially California, have been receiving increasingly large flows of migrants from foreign countries, while some are losing residents who move to other States.

New Yorkers, for example, have been moving in large numbers to southern States, especially Florida. California no longer attracts migrants from other States to the extent that it once did. In fact, for each year between 1990 and 1994, more people left the "Golden State" for other States than moved in. Only three States—North Dakota, West Virginia, and Wyoming—experienced absolute declines in population, although several of the larger States have numbers of residents moving out.

International migration does more than just mask the flow of people moving from State to State. Traditionally, States experiencing high rates of out-migration have tended to lose disproportionate numbers of their better-educated and affluent residents. States that have high rates of international immigration have a different problem. Residents in the low and middle income groups are more likely to leave these States.[12] The following section considers this phenomenon more fully.

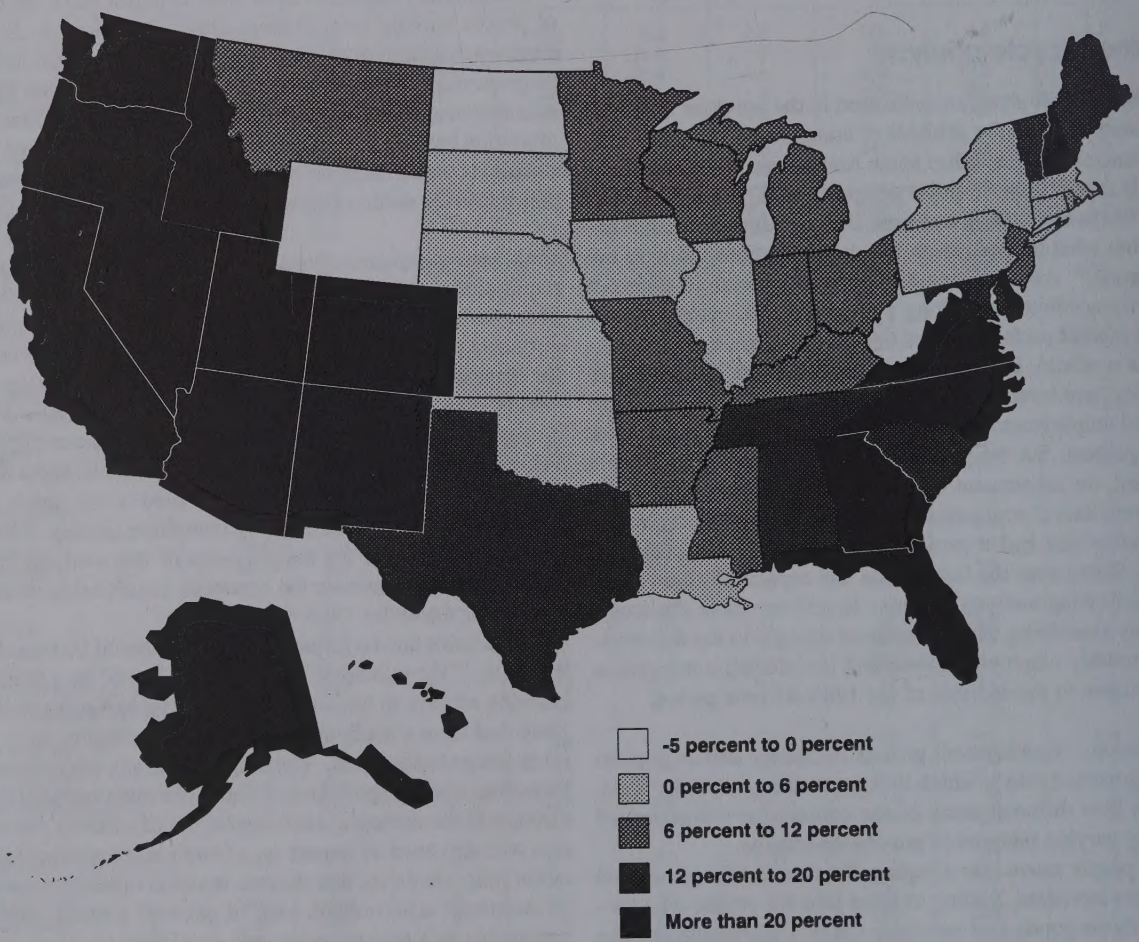
Employment-population ratios. It is important to account for population movements when assessing the growth of the States on a relative basis. One way to analyze relative employment growth in the various States in a way that accounts for these changes is to take employment in a given period and divide it by population for the same period. This results in a statistic commonly known as the employment-population ratio, which expresses the proportion of the population that is employed. Actually, the ratios used in this article are constructed somewhat differently than those usually defined by BLS.[13] However, for the purposes of this analysis, they quite effectively illustrate the economic trends being investigated over the entire 1983–95 period.

These ratios can be influenced by a number of factors. For example, if the number of persons over age 65 in a State is growing relative to the number of working-age persons, that State will have a declining employment-population ratio, all other things being equal. The employment-population ratios of various demographic groups can differ quite markedly, so changes in the demographic composition of a State's population will also have an impact on a State's employment-population ratio. Even so, this statistic is still a valuable measure of economic achievement, and, in general, a rising ratio is interpreted as a positive economic development.

Between 1983 and 1995, the official civilian employment-population ratio (based on the Current Population Survey (CPS) trended gently upward, due in large measure to steadily increasing employment among women. For the same reason, the employment-population ratios calculated for the individual States also exhibited an upward trend in most cases. What is examined in this analysis, however, is not just the long-term trend, but also the similarities among the various States in the cyclicial movements of their ratios. (See chart 2.)

Employment-population ratios were calculated for each State on a monthly basis for the period between January 1983 and December 1995.[14] The resulting data series were then rendered in graphic form to facilitate comparisons among the States and between each State and the Nation as a whole. As chart 3 shows, the results fell into six basic patterns, charac-

Chart 1. **Population growth by State, 1983–95**



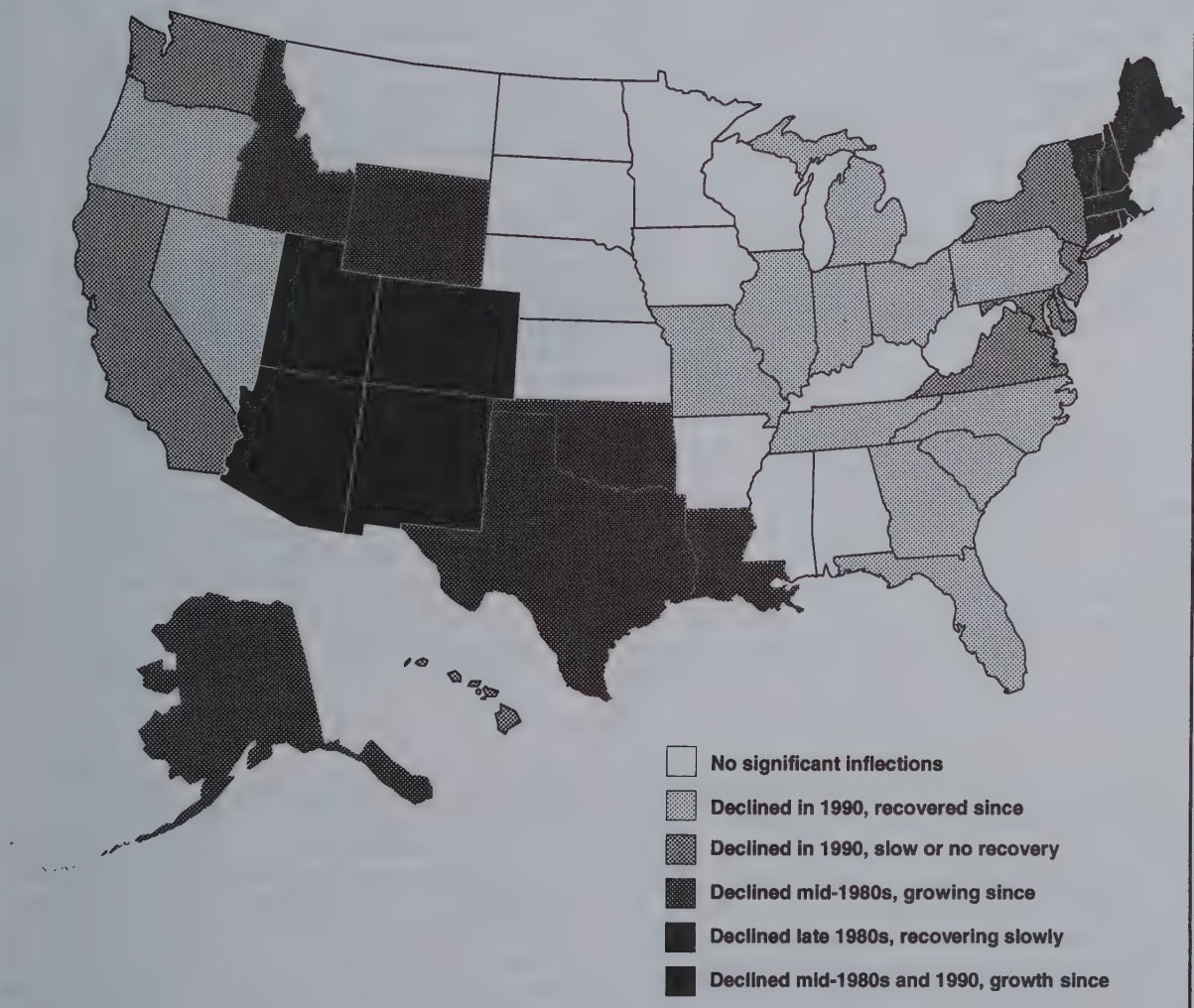
terized by the similarities in the movements of their employment-population ratios over time. These groupings are not precise, and some States could arguably have been included in groups other than those shown.

The first group, comprised of 13 States in a swath from Montana to Alabama, generally showed a steady pattern of growth in their employment-population ratios. The 1990–91 recession appears to have had little or no effect on the employment-population ratios in these States. Almost all of the States in this group have a large agricultural base. While this analysis uses data from the Current Employment Statistics program, which does not actually measure agricultural employment, this industry is nevertheless an important stabilizing force in the economies of these States. West Virginia is something of an exception here, in geographic as well as industry terms, and, even in 1995, its employment-population ratio was well below that of all other States. A few of the States in this group, notably Alabama and Mississippi, did exhibit a slight slowdown in growth during the recession, but immediately resumed their higher growth rates in 1991.

The second group consists of 13 States that most closely approximate national growth patterns over the last decade or

Chart 2.

States grouped according to pattern of employment-population ratio growth, 1983–95

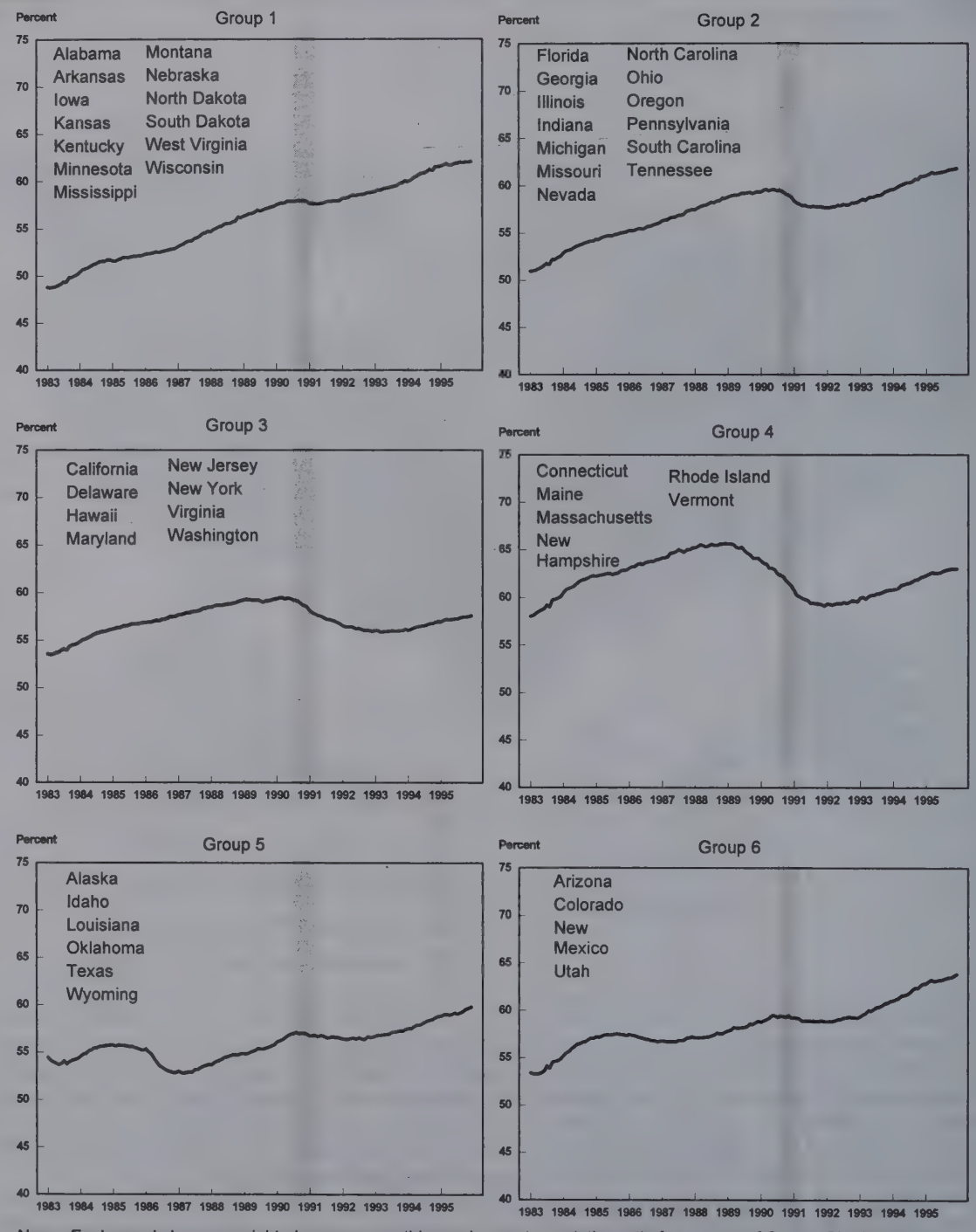

No significant inflections
Declined in 1990, recovered since
Declined in 1990, slow or no recovery
Declined mid-1980s, growing since
Declined late 1980s, recovering slowly
Declined mid-1980s and 1990, growth since

so. In each case, these States had steadily rising employment-population ratios throughout the mid- to late 1980s. Also in each case, the point at which the ratios began to decline more or less coincided with the official onset of the recession. The employment-population ratios of these States resumed their upward trends following the recession. Most of the States in this group have managed to maintain a solid manufacturing base. By contrast, Nevada and Florida both have economies that are heavily dependent on tourism. Since the traditional tourist markets for both these States were hit by the recession, tourism fell and the economies of both States suffered.

The next group, California and Washington on the West coast, along with several States in the mid-Atlantic region, slulmped during the 1990–91 recession, were slow to turn around, and have had fairly suggish growth since. All of these States have relatively high levels of foreign immigration and were hit hard by defense cutbacks.

The New England States are remarkably homogeneous with respect to the patterns of their employment-population ratios. In this region, the economic resurgence that took place during the early 1980s fizzled out in the latter part of the decade. As measured by employment-population ratios, the

Chart 3. Employment-population ratios by State, 1983–95



NOTE: Each panel shows a weighted average monthly employment-population ratio for a group of States. Shaded areas represent recession.

economic decline in this region was both deeper and more sustained than it was in any other part of the country. Also, the decline in New England started earlier than did those in other regions. New England was particularly hard hit by losses in the goods-producing sector. When the States are ranked according to the percent decline in factory employment, the New England States are all near the top of the list. Connecticut, the State with the highest percentage loss, experienced a 31-percent drop in factory employment between 1983 and 1995. Employment in manufacturing has continued its decline in New England, although Vermont and New Hampshire have added factory jobs since 1991.

The oil States experienced slumped economies during the mid-1980s, but have since grown quite briskly. In general, these States have seen mining employment fall sharply as part of a national trend, while employment in services grew as a proportion of the total. Alaska, however, had expanding employment in mining through about 1991, at which point it fell again. As a percentage of total employment, mining was about the same in Alaska in 1995 as it was in 1983.

While some States were relatively unaffected by the recession, and most showed no effects from the oil bust of the mid-1980's, the last group of States—Arizona, Colorado, New Mexico, and Utah—appear to have been affected by both events. These States generally have strong economies and are attracting migrants from other parts of the country. Their geographic location between California—which is still trying to recover from recession—and several oil States has, however, left them vulnerable to the economic misfortunes of both.

Key issues

There are a number of reasons why different States or regions would exhibit such diverse economic trends. For one, income and cost-of-living differentials exist among the different parts of the country. On the one hand, wage rates in the urban Northeast are higher than those in rural Utah, for example. On the other hand, the cost of living in high-wage urban areas tends to be commensurately high. This can be an incentive for firms as well as individuals to relocate. Also, economic shocks affect different regions in different ways. Plummeting oil prices in the mid-1980s devastated the Texas economy, but had a positive effect on most parts of the country because they benefited from lower energy costs.[15]

Nationwide industrial restructuring. It has been widely acknowledged that the 1990–91 recession was unlike previous economic downturns. This recession, and the subsequent recovery, came at a time of fundamental restructuring of the U.S. economy. As with economic shocks, this restructuring affected States in different ways. Employment in manufacturing has shrunk as a result of increasing global competition and productivity gains. In 1983, manufacturing accounted for slightly more than one-fifth of all nonfarm jobs. Twelve years later, less than 16 percent of nonfarm jobs were in manufacturing. Over that same period, the services industry increased its share of total employment in the United States from 22 percent to 28 percent. The national economy is now largely service driven. Some States have adapted rapidly to these new conditions and prospered.

Converting from traditional smokestack industries to a services-driven economy is not an easy process, however. Nor does reliance on service industries provide a guarantee of (relative) success. Indeed, other than Nevada and Florida, the States with the highest shares of service employment generally had economic performances that were, at best, mediocre from 1983 to 1995. Even given the decline in the importance of manufacturing, it would appear that a stable manufacturing base is still an important component for a strong economy.

Defense cutbacks. The end of the Cold War has been a two-edged sword for the U.S. economy. When the Iron Curtain finally fell in 1989 and 1990, many people assumed that the United States would enjoy a "peace dividend" as defense-related expenditures declined. However, as Federal defense procurement budgets have shrunk, many manufacturers have had to cut jobs. There has been a series of corporate takeovers and consolidations as companies, which are heavily dependent on defense dollars, have merged. Many of the jobs that disappeared with the declining defense budget were the type of skilled factory jobs that have traditionally been considered the basis of the economy.

Table 4 shows Federal defense spending as a percentage of gross State product for each State in 1984 and 1992. The States that experienced only small changes in defense spending performed well in the preceding analyses in most cases. Those States that underwent large Federal defense cuts were less consistent. On the one hand, Connecticut, a State that has performed rather poorly in economic terms over the last decade, experienced a decline in Federal defense spending from nearly 10 percent of gross State product to less than 4 percent. Missouri, on the other hand, has shown fairly robust growth in spite of a similar decrease in military dollars. So, while declining Federal defense spending may have had a major impact on some State economies, other States have taken the cuts in stride and continued to flourish.

California. Because of its sheer size and because it has traditionally been an economic leader among the States, California's fortunes are important both regionally and nationally. At least some of the growth in the States of the Mountain West (such as Idaho and Nevada) has resulted from an influx of Californians.

The Golden State has historically been a magnet for inter-

nal migration in the United States. Just as America was seen as the land of opportunity by the rest of the world, California was the land of opportunity for Americans. From the fertile Central Valley, which attracted refugees from the Midwest dust bowl in the 1930s, to the Silicon Valley of the 1980s, California has represented optimism and possibility. As the 1990s pass their halfway point, this optimism is tempered, at least temporarily. As already noted, California residents have

Table 4. Gross State product and Federal defense spending by State, 1984 and 1992

[Numbers in thousands]

State	1984			1992		
	Gross State product	Total defense spending	Percent	Gross State product	Total defense spending	Percent
Alabama	48,944,000	2,803,831	5.73	78,137,000	4,088,206	5.23
Alaska	24,814,000	984,162	3.97	25,957,000	1,574,665	6.07
Arizona	44,175,000	2,901,537	6.57	74,060,000	3,603,813	4.87
Arkansas	27,894,000	1,239,211	4.44	43,994,000	991,157	2.25
California	468,127,000	39,957,380	8.54	787,896,000	38,045,275	4.83
Colorado	54,539,000	2,620,171	4.80	82,463,000	4,661,472	5.65
Connecticut	60,590,000	5,976,352	9.86	98,873,000	3,718,975	3.76
Delaware	10,743,000	417,893	3.89	23,666,000	370,654	1.57
Florida	149,595,000	8,244,741	5.51	268,609,000	11,271,701	4.20
Georgia	87,232,000	5,771,692	6.62	153,534,000	8,029,949	5.23
Hawaii	16,687,000	2,369,329	14.20	33,203,000	2,964,455	8.93
Idaho	12,596,000	272,914	2.17	20,860,000	356,079	1.71
Illinois	190,262,000	3,068,079	1.61	294,449,000	3,128,460	1.06
Indiana	78,308,000	3,265,985	4.17	121,647,000	2,612,752	2.15
Iowa	40,313,000	563,745	1.40	59,457,000	644,052	1.08
Kansas	38,206,000	3,155,665	8.26	56,164,000	2,041,117	3.63
Kentucky	48,382,000	1,639,029	3.39	75,561,000	2,280,072	3.02
Louisiana	83,466,000	2,818,061	3.38	96,245,000	2,561,988	2.66
Maine	14,507,000	845,730	5.83	24,085,000	1,949,090	8.09
Maryland.	66,476,000	6,381,660	9.60	116,169,000	7,272,770	6.26
Massachusetts	100,572,000	7,859,457	7.81	161,966,000	6,678,909	4.12
Michigan	139,998,000	3,259,959	2.33	204,421,000	2,472,078	1.21
Minnesota	68,233,000	2,084,651	3.06	110,276,000	1,853,973	1.68
Mississippi	29,249,000	3,088,348	10.56	44,298,000	3,645,919	8.23
Missouri	73,748,000	7,690,775	10.43	111,604,000	5,336,107	4.78
Montana	11,420,000	246,662	2.16	15,227,000	288,559	1.90
Nebraska	24,005,000	663,051	2.76	37,213,000	970,777	2.61
Nevada	16,720,000	531,824	3.18	36,816,000	845,968	2.30
New Hampshire	14,806,000	1,119,796	7.56	25,524,000	643,820	2.52
New Jersey	131,988,000	4,712,355	3.57	223,146,000	4,919,763	2.20
New Mexico	22,100,000	1,327,633	6.01	31,863,000	1,747,465	5.48
New York	315,608,000	10,799,152	3.42	497,555,000	7,239,446	1.46
North Carolina	87,713,000	3,506,398	4.00	159,637,000	5,580,554	3.50
North Dakota	10,904,000	475,739	4.36	13,057,000	474,024	3.63
Ohio	160,935,000	4,398,894	2.73	241,604,000	5,214,950	2.16
Oklahoma	50,321,000	2,095,955	4.17	60,188,000	2,793,905	4.64
Oregon	37,618,000	544,626	1.45	62,724,000	637,550	1.02
Pennsylvania	168,739,000	5,438,426	3.22	266,969,000	5,669,428	2.12
Rhode Island	13,548,000	710,618	5.25	21,582,000	891,702	4.13
South Carolina	40,159,000	2,585,945	6.44	69,810,000	3,455,422	4.95
South Dakota	9,299,000	233,374	2.51	15,131,000	336,398	2.22
Tennessee	63,316,000	1,552,833	2.45	108,894,000	2,245,904	2.06
Texas	299,987,000	14,346,688	4.78	416,867,000	15,687,904	3.76
Utah	22,381,000	1,668,373	7.45	35,590,000	1,665,600	4.68
Vermont	6,866,000	224,314	3.27	11,844,000	138,898	1.17
Virginia	86,891,000	12,044,725	13.86	153,808,000	17,727,832	11.53
Washington	69,481,000	5,223,226	7.52	127,578,000	5,521,989	4.33
West Virginia	22,576,000	218,861	0.97	30,699,000	288,084	0.94
Wisconsin	69,568,000	1,263,519	1.82	109,517,000	1,334,501	1.22
Wyoming	13,355,000	202,377	1.52	13,186,000	232,623	1.76

SOURCES: Department of Commerce, Bureau of Economic Analysis and Department of Defense.

been leaving the State in increasing numbers. Although immigrants from Asia and Latin America are more than making up for the flight of the residents, a pronounced demographic shift is taking place.

In the past, when a State underwent substantial outmigration, it was usually the more mobile, better educated residents who were most likely to leave. In California (and several other States that experience very high rates of international immigration, such as New York), persons leaving for other States are more likely to be from the lower and middle income ranges.[16] This process, combined with underlying industrial restructuring results in (and is exacerbated by) a "hollowing out" in these States, leaving a lot of high-wage and low-wage jobs, but decreasing numbers of jobs in the middle-income range. Some States with high numbers of international immigrants are spared this phenomenon because they also have experienced inflows of internal migrants. But for other States, this is a growing issue.

Conclusions

Since 1983, the migration of both people and jobs to the South and West that was evident in earlier decades has continued. In contrast to earlier periods, though, California is no longer a primary destination. A number of economic factors have come into play, shifting growth away from those States, such as California and New York, that have previously been centers of growth. The new growth regions are the Mountain West and the deep South, although the southern States are not growing as strongly in the current expansion as they did during the 1980s. The northeastern States, which experienced something of an economic renaissance in the 1980s, are again having economic problems, and residents are leaving for more promising regions.

As the relative importance of manufacturing has declined, so has the tendency for jobs to remain in the "rust belt" (namely the traditional heavy manufacturing industries). Firms and industries are less constrained by geographic factors than was previously the case. Workers and employers, given the opportunity, are "voting with their feet" and relocating to areas away from the traditional population centers of the Northeast, Midwest, and California.

Perhaps the most salient feature of any analysis of regional employment growth is the constant change in the list of strong and weak performers. Whether it be New England, Texas, the Midwest, California, or the Mountain States, with time comes a dramatic shift in relative economic fortunes. The events of the last decade have illustrated this point well. □

Footnotes

[1] For this analysis, the component effects for each State are defined as follows:

$$\Delta E_s^{83,95} = E_s^{83}((E_n^{95}/E_n^{83})-1) \quad \text{(National share)}$$

$$+\Sigma_i E_i^{83}((E_{in}^{95}/E_{in}^{83})-(E_n^{95}/E_n^{83})) \quad \text{(Industry mix)}$$

$$+\Sigma_i E_i^{83}((E_i^{95}/E_i^{83})-(E_{in}^{95}/E_{in}^{83})) \quad \text{(State share)}$$

where E_s is the total employment in State s,
E_i is the employment in industry i for each State,
E_{in} is total national employment in industry i,
E_n is total national employment.

This analysis employs data from the Current Employment Statistics program, a nationwide monthly survey of nearly 400,000 establishments, which account for about 45 percent of total nonfarm employment in the United States. Data for the 1983–95 period are used. With these data, two economic expansions (including the current one) can be included in the analysis, as well as one full recession. Data for 1995 are the latest available annual averages.

[2] Note also that economically similar States, such as Pennsylvania and Ohio or Montana and North Dakota may be grouped into different census regions or divisions. It is often convenient to refer to regions rather than individual States, but in the context of this article, such references are used in a generic sense and not to specify officially defined groups.

[3] For the purposes of this study, national totals are simply the sum of the State totals, unless otherwise stated. The Current Employment Statistics program produces independent national employment estimates which are not derived by summing the States, but because these totals do not equal the sum of the State totals, the independent national totals are not used. Also, for the sake of consistency with the business cycle analysis presented later in this article, the District of Columbia has been omitted from this analysis. (See footnote 14.)

[4] The industry divisions used in this analysis were as follows: mining; construction; manufacturing; transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; services; and government.

[5] Note that if the aggregate share of employment for an industry is decreasing over time, the industry mix statistic for that industry will be negative (or zero) for all States. If the industry's national employment share is increasing, the statistic will be positive (or zero) for all States. When looking at individual industry effects in individual States, we realize that the relative magnitude of the measure is crucial.

[6] In fact, the State employment share component indicates how well the industries within a State do in an *aggregate* sense. It is quite possible that one or two industries could be the driving force behind a State's growth (or decline), although it is also true that local or regional economic events tend to affect a wide range of industries.

[7] The share index (SI) is calculated as follows: $$SI = \frac{E_{is}^{t+1}/E_{is}^{t}}{E_{in}^{t+1}/E_{in}^{t}}$$

where E_{is} is the employment in industry i and State s,
E_{in} is employment in industry i for all States,
t is the base year, and
t+1 is the final year in a comparison.

[8] For a fuller explanation of share indexes, see Philip L. Rones, "Analysis of regional employment growth, 1973–85," *Monthly Labor Review*, July 1986, pp. 3–14.

[9] In many cases, there were no actual declines in the number of persons employed in an industry. It would be more accurate to say that these States had lower growth rates than the Nation as a whole. For the sake of simplicity, the terms "gains" and "losses" occasionally are used in this article to describe situations in which a State showed employment growth at less than the national rate.

[10] This limitation is overcome to some extent in this case by dividing the 11-year period into 3 subperiods.

[11] For detailed discussions of interstate and international migration patterns, see William H. Frey, "The New White Flight," *American Demographics*, April 1994, pp. 40–48; and Peter Francese, "America at Mid-Decade," *American Demographics*, February 1995, pp. 23–31.

[12] Ibid.

[13] Employment-population ratios are normally computed based on employment as defined by the Current Population Survey (CPS). However, monthly estimates for most States are not available directly from the CPS, therefore, to remain consistent with data used in the preceding shift-share analysis, employment data from the Current Employment Statistics (CES) program are used instead. The CES employment count is conceptually different from that in the CPS in that the former excludes agricultural workers and the self-employed and includes workers in each job in which they are employed. Also, the population figures used in the article are for persons 18 and older and not 16 and older, as in the CPS-based rate.

The Bureau of the Census makes population estimates for each State based on July 1 of each year. For this analysis, monthly population estimates are necessary. The monthly estimates for each State were calculated using linear interpolation; that is, the population estimates for the months between the July estimates of each year assume constant growth over the year. The seasonal variations in population growth would likely be too small to affect the results.

The Local Area Unemployment Statistics (LAUS) program of the BLS produces employment-population ratios for each State on an annual basis using data from the CPS. The ratios used in this analysis were calculated independently because the employment estimates derived from the CES are based on a much larger sample and are benchmarked each year to what amounts to a universe count of employment. This means that the CES State employment estimates are the most accurate available. The Local Area Unemployment Statistics program does produce monthly estimates of State employment-population ratios, but these estimates are based on mathematical models rather than deriving directly from employment estimates.

[14] The District of Columbia was not included in this analysis because the majority of workers in Washington, DC, commute from neighboring States. While this phenomenon, no doubt, affects all States to a degree, it renders the employment-population ratios for the District of Columbia (as calculated in this article) unusable.

[15] See Rones, "Regional employment," for a more detailed discussion of regional incomes and economic shocks.

[16] Frey, "The New White Flight."

Employment in R&D-intensive high-tech industries in Texas

Petroleum and chemicals still distinguish the Texas high-technology sector from its counterparts in other States; but employment growth in Texas has shifted recently, first to civilian durable goods—particularly personal computers—and then, more importantly, to high-tech services

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Since the early 1980s, literally dozens of studies have been published about the geography of high-technology industry in the United States. But because the structure of the industry is constantly evolving, it is often difficult to generalize about the distribution of employment in high technology between and within regions of the United States.[1] California and Massachusetts are often regarded as the preeminent centers of U.S. high-tech industry, but other States have emerged as important locations for new plants and new firms as well. For some time now, Texas has been recognized as a leading center of employment in high technology,[2] yet there have been few attempts to compare the industrial composition of high-tech industry in Texas with that of other States.[3] In this article, we use a definition of "research-and-development (R&D) intensive," as applied to high-tech industries, developed by the Bureau of Labor Statistics in the early 1990s,[4] together with data from the BLS Covered Employment and Wages program (also known as the ES-202 program), to analyze the distinguishing features of Texas-based employment in R&D-intensive high-tech industries relative to that of California, Massachusetts, and, both implicitly and explicitly, the Nation as a whole.

We focus on three aspects of R&D-intensive high-tech industry in Texas relative to the two comparison States and the Nation. First, which industries dominate the composition of employment in Texas R&D-intensive industry? Second, in what ways has Texas employment in this sector changed between 1988 and 1994? Third, what effect have these changes had on Texas' position in the national market hierarchy of R&D-intensive industry? Perhaps our most striking finding is that employment in the R&D-intensive high-tech sector in Texas *increased* during the 6-year interval for which data were available. By contrast, the high-tech sectors in California, Massachusetts, and the Nation all shed employment. But this is a more complex issue than it at first appears. In the remainder of the article, we consider our findings in both the empirical and theoretical context of how R&D-intensive high-tech industries influence the growth and development of regional economies.

High tech and regional economies

For all the attention that high-tech industries receive, their numeric impact on total U.S. employment remains relatively small. In the early 1980s, BLS researchers developed three alternative definitions of high-tech industry and estimated their contribution to total U.S. employment at between 2.8 percent and 13.4 percent.[5] A decade later, another group of BLS researchers introduced two new definitions—"R&D-intensive" high-tech industries and "R&D-moderate" high-tech industries—and

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estimated employment in the former category at 9.8 percent of total nongovernment and noneducation employment in 1989.[6] More recently, we used the "R&D-intensive" high-tech industry definition and data from the Current Employment Statistics (CES) program to calculate January 1996 employment in such industries at 7.5 percent of all U.S. nonfarm jobs. Table 1 lists these industries and their 1994 employment levels in the Nation, Texas, California, and Massachusetts.

Interest in R&D-intensive industries goes far beyond their contribution to national employment growth, however. Drawing on the work of economists such as Joseph Schumpeter,[7] many theorists view technological innovation as the prime mover in economic development and R&D-intensive industries as the crucial locus of innovation. Through relationships with other industries, technological innovations spawn new generations of products as they diffuse through the economy.[8] In addition, some scholars have argued that R&D-intensive industry's ability to spawn new products and processes generates a synergistic and quite positive combination of effects at the regional and local levels: rapid and self-sustaining employment growth, dense networks of linkages between firms, rapidly expanding markets, and high rates of new-business formation. All of these factors help generate robust economic growth and protect against cyclical downturns in the economy.[9] Thus, it is not simply employment in R&D-intensive industries that is important to regional economies. What is also significant is these industries' role as generators of economic development, more broadly defined.

Given the widely varying composition of regional R&D-intensive industry clusters, how do we evaluate the contribution to regional economic performance of one region's R&D-intensive industries over another's? One way to understand the relationship between the composition of these clusters and qualitative regional economic change is through Raymond Vernon's product and industry life cycle model.[10] Vernon's original version of the model was applied to periods of relatively short duration (6–8 years) and focused narrowly on products alone. Subsequent efforts generalized the model to the development of whole industries and longer periods to account for regional economic change.[11]

As industries go through a life cycle from innovation to growth, maturity, and senescence, each stage or phase has distinct locational requirements. The innovation phase, usually associated with large amounts of R&D, tends to be carried out by firms in "core areas"—usually large metropolitan areas in industrially developed regions—where technical and scientific workers are more readily available. In both the innovation and growth stages, markets for new products or processes expand rapidly, as do rates of employment growth, profits, and new-business formation. Toward the other end of the cycle, the mature phase of production is associated with products that have become standardized or with entire industries whose production processes embody routine technology. Firms in this stage tend to favor lower cost locations in "peripheral areas"—regions in which industrial development has lagged and land and labor costs are low. Rates of market and employment growth for firms in this stage are very low or even negative.

During the 1980s, A. Glasmeier introduced a more complex categorization of space for R&D-intensive industries by adding an intermediate locational phase to the product cycle model: advanced production areas.[12] These areas emerge during the growth phase as firms in core areas relocate in response to increasing costs created by rapid local growth. Unlike peripheral regions, which are dominated by branch plants that assemble standardized products, advanced production areas contain establishments that are stand-alone profit centers in which skilled and semiskilled workers conduct product development and fabricate various components.[13]

The U.S. semiconductor industry illustrates Glasmeier's variation on the product cycle model. Early growth of the industry was concentrated in California's Santa Clara county. As the industry developed, certain phases of the production process were relocated elsewhere. First, the final assembly of semiconductors (a labor-intensive, low-skill phase) was relocated to low-wage sites in Asia and Mexico during the 1960s. Then, in the 1970s and 1980s, high-skilled and advanced production phases of the manufacturing process were moved to other sites in the United States that offered not only an adequate supply of unskilled labor, but also sufficient amenities to appeal to the highly paid technicians, engineers, and other specialists necessary for product-related R&D. These changes shifted all but the highest order R&D functions out of Santa Clara County,[14] and new advanced production areas—for example, in Colorado and Texas—have since experienced high rates of employment growth in semiconductor and related R&D-intensive firms and industries.[15]

The product cycle model has been criticized as a simplistic framework that cannot capture all the complexity of technologically driven regional economic change. Clearly, Texas is a complex case. On the one hand, much of the State's employment base in some R&D-intensive industries (particularly electronics) appears to have arrived from core areas such as California and Massachusetts as an outcome of the advanced production phase of the product cycle. On the other hand, the growth of signature Texas R&D-intensive industries, such as petroleum and petrochemical production, is best attributed to the State's natural resources and economic history, rather than to a life cycle process. In either case, however, the products and processes of industries that are present in any regional economy (whether home grown or imported) at any point in time are unquestionably in different phases of their life cycles. Thus, if contrasts in regional growth and development are at least partly the result of differences in the technical sophisti-

Table 1. Annual average employment in R&D-intensive industries in the United States, Texas, California, and Massachusetts, 1988 and 1994

SIC	Industry name	United States			Texas			California			Massachusetts		
		1988	1994	Percent of 1994 total	1988	1994	Percent of 1994 total	1988	1994	Percent of 1994 total	1988	1994	Percent of 1994 total
	Total	8,471,627	8,355,144	100.0	587,094	627,217	100.0	1,329,962	1,151,593	100.0	374,924	313,398	100.0
131	Crude petroleum and natural gas operations	197,225	161,839	1.9	90,656	78,835	12.6	18,153	14,043	1.2	0	(1)	...
211	Cigarettes	40,872	30,142	.4	(1)	(1)	...	0	0	.0	0	0	.0
281	Industrial inorganic chemicals	134,976	131,797	1.6	7,481	8,459	1.3	7,401	6,424	.6	1,302	738	.2
282	Plastics materials and synthetics	176,657	161,586	1.9	9,704	11,844	1.9	3,411	3,636	.3	4,857	3,318	1.1
283	Drugs	228,694	262,947	3.1	4,849	6,058	1.0	24,062	26,841	2.3	4,075	6,189	2.0
284	Soap, cleaners, and toilet goods	158,749	152,349	1.8	4,703	5,312	.8	15,728	13,773	1.2	2,886	2,118	.7
285	Paints and allied products	63,572	58,049	.7	3,636	3,291	.5	7,510	6,301	.5	1,414	956	.3
286	Industrial organic chemicals	145,803	142,753	1.7	35,347	37,324	6.0	3,652	3,690	.3	417	1,033	.3
287	Agricultural chemicals	52,068	55,046	.7	4,567	3,698	.6	2,976	3,573	.3	98	91	.0
289	Miscellaneous chemical products	101,932	93,464	1.1	7,327	8,292	1.3	8,852	6,701	.6	3,458	3,249	1.0
291	Petroleum refining	123,893	109,011	1.3	26,245	26,126	4.2	24,908	18,650	1.6	(1)	(1)	...
299	Miscellaneous petroleum and coal products	12,104	13,017	.2	1,159	1,005	.2	877	904	.1	409	455	.1
335	Nonferrous rolling and drawing	179,149	166,713	2.0	4,102	6,295	1.0	12,897	9,367	.8	6,522	4,302	1.4
355	Special industry machinery	159,605	154,659	1.9	3,269	3,314	.5	10,696	14,266	1.2	10,794	8,624	2.8
357	Computer and office equipment	465,443	352,904	4.2	22,128	29,688	4.7	92,484	82,845	7.2	54,018	28,668	9.1
362	Electrical industrial apparatus	180,341	156,207	1.9	3,836	4,024	.6	12,780	7,506	.7	6,038	5,144	1.6
366	Communications equipment	273,475	243,500	2.9	21,758	23,649	3.8	32,918	30,229	2.6	23,746	15,734	5.0
367	Electronic components and accessories	619,730	544,893	6.5	64,660	59,757	9.5	150,037	118,369	10.3	38,787	25,509	8.1
371	Motor vehicles and equipment	847,627	898,684	10.8	17,487	16,816	2.7	35,158	32,251	2.8	2,687	1,336	.4
372	Aircraft and parts	678,032	480,037	5.7	55,405	45,087	7.2	164,846	91,904	8.0	10,096	5,888	1.9
376	Guided missiles and space vehicles	209,366	107,773	1.3	15,470	2,083	.3	81,055	36,832	3.2	17,583	11,235	3.6
381	Search and navigation equipment	316,356	182,401	2.2	11,744	8,661	1.4	124,718	61,975	5.4	16,255	10,992	3.5
382	Measuring and controlling devices	325,140	283,634	3.4	10,946	12,312	2.0	70,671	60,188	5.2	28,579	22,475	7.2
384	Medical instruments and supplies	232,983	265,129	3.2	10,931	14,052	2.2	37,255	41,383	3.6	13,447	13,942	4.4
386	Photographic equipment and supplies	110,706	88,308	1.1	579	695	.1	9,759	4,739	.4	10,323	8,660	2.8
737	Computer and data-processing services	662,835	955,095	11.4	47,030	70,196	11.2	99,258	134,682	11.7	36,611	47,517	15.2
871	Engineering and architectural services	724,837	773,775	9.3	50,874	63,993	10.2	102,757	99,693	8.7	31,595	27,182	8.7
873	Research and testing services	505,040	560,245	6.7	23,499	29,347	4.7	85,998	96,568	8.4	25,076	26,000	8.3
874	Management and public relations services	512,310	727,987	8.7	26,514	44,951	7.2	84,239	118,717	10.3	22,980	31,319	10.0
899	Services, n.e.c.[2]	32,107	41,200	.5	1,188	2,053	.3	4,906	5,543	.5	871	724	.2

[1] Data not permitted to be disclosed.
[2] n.e.c. = not elsewhere classified.

SOURCE: Covered Employment and Wages (ES–202) program, Bureau of Labor Statistics.

cation of a given region's industry, then the industry life cycle metaphor is an appropriate way to assess the present and future contributions of Texas R&D-intensive industries to statewide economic performance.

R&D employment in three States

R&D-intensive industries employed 627,217 workers in Texas in 1994, approximately half that of national leader California (1,151,593),[16] and slightly more than twice that of Massachusetts (313,398). (See table 1.) These figures represented 7.5 percent, 13.8 percent, and 3.8 percent, respectively, of all U.S. employment in R&D-intensive industries in 1994, which stood at 8,355,144. Employment in R&D-intensive industries accounted for very similar shares of private employment in Texas (10.0 percent), California (11.0 percent), and Massachusetts (12.7 percent), but this narrow range masked a great deal of variation in the industrial composition of that employment.[17]

Despite falling oil prices and ensuing industry retrenchment during the 1980s, almost one-third of all Texas employment in R&D-intensive high-tech industries was still in petroleum extraction and refining (SIC's 131, 291, and 299) and in the production of chemicals (SIC 28). The largest single R&D-intensive employer in Texas as of 1994 was the crude petroleum and natural gas operations industry (SIC 131), with 78,835 workers. This industry, along with petroleum refining (SIC 291; 26,126) and miscellaneous petroleum and coal products (SIC 299; 1,005), accounted for about 17 percent of all employment in the State's R&D-intensive sector. Data suppression to maintain confidentiality made it difficult to determine the exact magnitude of employment in these indus-

tries in Massachusetts, but it was likely a very small share of the R&D-intensive total. In California, petroleum extraction and refining made up slightly less than 3 percent of that total.

Chemicals—in particular, industrial organic chemicals (SIC 286), plastics materials and synthetics (SIC 282), industrial inorganic chemicals (SIC 281), and miscellaneous chemicals (SIC 289)—accounted for another 13.4 percent of total employment in Texas R&D-intensive industries. Like the petroleum-related industries, chemical manufacturing was a relatively minor component of R&D-intensive industry employment in both California (6.2 percent) and Massachusetts (5.6 percent).

Conversely, R&D-intensive service industries—computer and data-processing services (SIC 737), engineering and architectural services (SIC 871), management and public relations services (SIC 874), research and testing services (SIC 873), and services, not elsewhere classified (n.e.c.) (SIC 899)—were central components of employment in all three States' R&D-intensive industry mix. These service industries accounted for an additional one-third (33.6 percent) of the statewide total in Texas. Indeed, in terms of total State R&D-intensive employment, the first four industries listed occupied the second, third, sixth, and ninth ranks, respectively. The one-third share, however, was less than the contribution of services to R&D-intensive high-tech employment in California (39.5 percent) and Massachusetts (42.4 percent).

Slightly more than one-third (36 percent) of the remaining employment in R&D-intensive industries in Texas was in durable goods manufacturing industries. This share was much less than that of either California or Massachusetts, where durable goods made up about half of the high-tech total. Electronic components (SIC 367) and aircraft and parts (SIC 372) were the leading industries in Texas and California. The contribution of the electronic components industry to 1994 R&D-intensive industry employment in Texas was approximately equal to that in California and Massachusetts, with the contribution of aircraft and parts equal to that of California and much greater than that of Massachusetts. But the share of statewide R&D-intensive industry employment was considerably lower in Texas than in the latter two States for other signature R&D-intensive industries—for example, computer

Table 2. Proportional and net shifts in employment in R&D-intensive industries in the United States, Texas, California, and Massachusetts, 1988–94

SIC	Industry name	United States		Texas		California		Massachusetts	
		Percent	Net	Percent	Net	Percent	Net	Percent	Net
	Total	–1.4	–116,483	6.8	40,123	–13.4	–178,369	–16.4	–61,526
131	Crude petroleum and natural gas operations	–17.9	–35,386	–13.0	–11,821	–22.6	–4,110	(1)	(1)
211	Cigarettes	–26.3	–10,730	(1)	(1)	.0	0	.0	0
281	Industrial inorganic chemicals	–2.4	–3,179	13.1	978	–13.2	–977	–43.3	–564
282	Plastics materials and synthetics	–8.5	–15,071	22.1	2,140	6.6	225	–31.7	–1,539
283	Drugs	15.0	34,253	24.9	1,209	11.5	2,779	51.9	2,114
284	Soap, cleaners, and toilet goods	–4.0	–6,400	12.9	609	–12.4	–1,955	–26.6	–768
285	Paints and allied products	–8.7	–5,523	–9.5	–345	–16.1	–1,209	–32.4	–458
286	Industrial organic chemicals	–2.1	–3,050	5.6	1,977	1.0	38	147.7	616
287	Agricultural chemicals	5.7	2,978	–19.0	–869	20.1	597	–7.1	–7
289	Miscellaneous chemical products	–8.3	–8,468	13.2	965	–24.3	–2,151	–6.0	–209
291	Petroleum refining	–12.0	–14,882	–.5	–119	–25.1	–6,258	(1)	(1)
299	Miscellaneous petroleum and coal products	7.5	913	–13.3	–154	3.1	27	11.2	46
335	Nonferrous rolling and drawing	–6.9	–12,436	53.5	2,193	–27.4	–3,530	–34.0	–2,220
355	Special industry machinery	–3.1	–4,946	1.4	45	33.4	3,570	–20.1	–2,170
357	Computer and office equipment	–24.2	–112,539	34.2	7,560	–10.4	–9,639	–46.9	–25,350
362	Electrical industrial apparatus	–13.4	–24,134	4.9	188	–41.3	–5,274	–14.8	–894
366	Communications equipment	–11.0	–29,975	8.7	1,891	–8.2	–2,689	–33.7	–8,012
367	Electronic components and accessories	–12.1	–74,837	–7.6	–4,903	–21.1	–31,668	–34.2	–13,278
371	Motor vehicles and equipment	6.0	51,057	–3.8	–671	–8.3	–2,907	–50.3	–1,351
372	Aircraft and parts	–29.2	–197,995	–18.6	–10,318	–44.2	–72,942	–41.7	–4,208
376	Guided missiles and space vehicles	–48.5	–101,593	–86.5	–13,387	–54.6	–44,223	–36.1	–6,348
381	Search and navigation equipment	–42.3	–133,955	–26.3	–3,083	–50.3	–62,743	–32.4	–5,263
382	Measuring and controlling devices	–12.8	–41,506	12.5	1,366	–14.8	–10,483	–21.4	–6,104
384	Medical instruments and supplies	13.8	32,146	28.6	3,121	11.1	4,128	3.7	495
386	Photographic equipment and supplies	–20.2	–22,398	20.0	116	–51.4	–5,020	–16.1	–1,663
737	Computer and data-processing services	44.1	292,260	49.3	23,166	35.7	35,424	29.8	10,906
871	Engineering and architectural services	6.8	48,938	25.8	13,119	–3.0	–3,064	–14.0	–4,413
873	Research and testing services	10.9	55,205	24.9	5,848	12.3	10,570	3.7	924
874	Management and public relations services	42.1	215,677	69.5	18,437	40.9	34,478	36.3	8,339
899	Services, n.e.c.[2]	28.3	9,093	72.8	865	13.0	637	–16.9	– 147

[1] Data not permitted to be disclosed.
[2] n.e.c. = not elsewhere classified.

SOURCE: Authors' calculations from data provided by the Covered Employment and Wages (ES-202) program, Bureau of Labor Statistics.

and office equipment (SIC 357), special industry machinery (SIC 355), and the instruments and related products group (SIC's 381, 382, 384, and 386).

Although aircraft and parts was the fifth largest R&D-intensive employer in Texas, defense-dependent R&D-intensive industries[18]—which, in addition to aircraft and parts, included search and navigation equipment (SIC 381) and guided missiles and space vehicles and parts (SIC 376)—were comparatively modest contributors to total Texas R&D-intensive employment. Overall, these industries accounted for 8.9 percent of Texas employment in R&D-intensive industries, a figure essentially equal to Massachusetts' 9 percent, but considerably less than California's 16.6 percent. Texas' share translated into 55,831 jobs in 1994.

Growth of R&D-intensive employment in Texas

At the national level, total U.S. employment in R&D-intensive industries decreased by 1.4 percent between 1988 and 1994. California and Massachusetts followed the national trend, recording employment decreases of 13.4 percent and 16.4 percent, respectively, over the 6-year period. Of the 30 R&D-intensive industries examined in this article, 20 recorded employment losses nationally over the period. (See table 2.) The largest declines were in the defense-dependent industries (SIC's 372, 381, and 376), which fell 29 percent, 42 percent, and 49 percent, respectively. These were followed closely by cigarettes (SIC 211, –26.3 percent), computer and office equipment (–24.2 percent), and photographic equipment and supplies (SIC 386, –20.2 percent). The largest increases were in the services categories, principally computer and data-processing services (44.1 percent), management and public relations (42.1 percent), and services, n.e.c. (28.3 percent). Only one durable goods industry, medical instruments and supplies (SIC 384, 13.8 percent), and one chemical industry, drugs (SIC 283, 15.0 percent), recorded employment growth. Both of these are tied closely to the health care industry.

In sharp contrast, and in spite of a loss of 12,100 workers (10.2 percent) in the oil and gas sector (SIC's 131, 291, and 299), Texas registered a 6.8-percent increase in the number of workers employed in R&D-intensive high-tech industries. This amounted to 40,123 new jobs, or slightly more than 1.1 percent per year between 1988 and 1994. One of the more striking features of this growth was that 12 of the 20 industries that declined nationally grew in Texas. For example, computer and office equipment declined by 24 percent nationally, but increased by 34 percent in Texas, for a net gain of 7,560 workers. Although not particularly well represented in Texas, plastics materials and synthetics, nonferrous rolling and drawing (SIC 335), and photographic equipment and supplies also declined nationally, but grew by more than 20 percent within the State. In contrast, in Massachusetts, only one nationally declining industry—industrial organic chemicals—recorded an increase in employment, and this industry was a very minor contributor to total R&D-intensive employment in the State. Within California, only three nationally declining industries—soap, cleaners, and toilet goods (SIC 284), plastics materials and synthetics, and special industry machinery—recorded growth. Again, none were substantial contributors to total State employment.

Nationally, with the exception of drugs and agricultural chemicals, employment in all three-digit components of the chemicals group declined between 1988 and 1994. The situation was the same in California and Massachusetts, but Texas bucked the trend: the R&D-intensive industries that were most important to the State fared well. Besides the petroleum industries, industrial organic chemicals (the largest chemical industry employer in Texas) grew in spite of a national decline, and four of the other five chemical industries that recorded employment losses at the national level also grew in Texas. Similarly, although the proportion of services to total R&D-intensive employment in Texas is somewhat smaller than in California or Massachusetts, employment growth rates in all five of these increasingly important industries were higher in Texas. In particular, employment in engineering and architectural services increased 26 percent, while declining in both California and Massachusetts.

Nevertheless, despite gains in 8 of the 13 durable goods R&D-intensive industries in Texas, employment declined in high-tech durable goods, as it did nationally and in California and Massachusetts. But the percentage decrements in electronic components and accessories and in aircraft and parts, the two largest R&D-intensive durable goods employers in Texas, were about two-thirds that of the national decline and well under one-half that of each of California and Massachusetts. Similarly, although Texas was less well represented in the instruments group (SIC 38), only one of the four industries in the group—search and navigation equipment—recorded an employment loss in Texas, while two of the other three industries declined nationally and in the two comparison States.

Hierarchy of R&D-intensive industries

Thus far, both in cross section and across time, industry employment in the Texas R&D-intensive high-tech sector is quite different from that in the "core" high-tech States of California and Massachusetts. To evaluate the differences more precisely, we calculated *location quotients* for all three States in both 1988 and 1994. The location quotient measures differences in the concentration of employment in a given industry and region relative to the Nation as a whole. A location quotient greater than 100 indicates that an R&D-intensive industry is more specialized in a given State than in the Nation as a whole. The term "specialized" is often interpreted to mean that the industry produces more of its good or service

than is necessary to supply the needs of its home State or region and that it therefore exports a share greater than the national average to external markets. However, this interpretation is problematic because some R&D-intensive high-tech industries are so much more export intensive than others.[19] For example, in fields such as guided missiles and space vehicles, and semiconductors and related devices (SIC 3674, contained in electronic components and accessories), even if there were only a small amount of employment in a given State and a correspondingly low location quotient, *all* of the output might be intended for purchase elsewhere. This issue is made even more poignant by our knowledge that in most R&D-intensive industries over the past several years, output has been increasing while employment has been falling.[20]

In this case, therefore, we calculated the location quotient by first dividing statewide employment in each R&D-intensive industry (for example, in Texas, aircraft and parts) by employment in all R&D-intensive industries in Texas, and so on for each industry and statewide R&D-intensive employment total in Texas and the other two States. An identical ratio was calculated for R&D-intensive industry at the national level, and the State ratio for each industry was divided by the national ratio.[21] While our use of the *total employment in R&D-intensive industries* in the denominators of the State and national ratios is somewhat unorthodox (most researchers simply use *total employment* at the State and national levels), it helps us compare "apples with apples"—that is, Texas producers of R&D-intensive goods and services with their R&D- and export-intensive counterparts throughout the Nation and in California and Massachusetts.[22] Further, by calculating location quotients at the beginning and end of the 1988–94 period, we are able to see how different rates of R&D-intensive industry employment growth at the State *and* national levels affected the degrees of high-tech industry specialization among the three States studied. Also, examining the location quotients at the beginning and end of the 6-year interval indicates whether employment growth in Texas high-tech industries came at the expense of California and Massachusetts, or, for that matter, whether employment in a given R&D-intensive industry was tending to concentrate toward (or away from) any one (or all) of the three States.

Table 3 shows only the industries in which at least one of the three States had location quotients greater than 100 in either 1988 or 1994. We first compare the 1994 location quotients. Not surprisingly, Texas was very highly specialized in crude petroleum and natural gas operations, industrial organic chemicals, and petroleum refining. The magnitudes of the coefficients in these industries indicate the extent to which Texas-based petrochemical industries participate in production for national and even global markets. Texas also was specialized, but to a lesser extent, in miscellaneous petroleum and coal products and miscellaneous chemical products. By contrast, the location quotients for all of these industries were less than 100 in California and Massachusetts, with the exception of petroleum refining in California.

On the other hand, only four durable goods manufactur-

Table 3. Location quotients of selected R&D-intensive industries in Texas, California, and Massachusetts, 1988 and 1994

SIC	Industry name	Texas		California		Massachusetts	
		1988	1994	1988	1994	1988	1994
131	Crude petroleum and natural gas operations	663.3	648.6	58.6	63.0	[1]	[1]
286	Industrial organic chemicals	349.8	348.3	16.0	18.8	6.5	19.3
291	Petroleum refining	305.7	319.3	128.1	124.1	[1]	[1]
367	Electronic components and accessories	150.6	146.1	154.2	157.6	141.4	124.8
299	Miscellaneous petroleum and coal products	138.2	102.9	46.2	50.4	76.4	93.2
287	Agricultural chemicals	126.6	89.5	36.4	47.1	4.3	4.4
372	Aircraft and parts	117.9	125.1	154.9	138.9	33.7	32.7
366	Communications equipment	114.8	129.4	76.7	90.1	196.2	172.3
376	Guided missiles and space vehicles	106.6	25.8	246.6	248.0	189.8	277.9
289	Miscellaneous chemical products	103.7	118.2	55.3	52.0	76.7	92.7
737	Computer and data-processing services	102.4	97.9	95.4	102.3	124.8	132.6
871	Engineering and architectural services	101.3	110.2	90.3	93.5	98.5	93.7
874	Management and public relations services	74.7	82.3	104.7	118.3	101.4	114.7
357	Computer and office equipment	68.6	112.1	126.6	170.3	262.2	216.6
384	Medical instruments and supplies	67.7	70.6	101.9	113.3	130.4	140.2
873	Research and testing services	67.1	69.8	108.5	125.1	112.2	123.7
381	Search and navigation equipment	53.6	63.3	251.1	246.5	116.1	160.7
382	Measuring and controlling devices	48.6	57.8	138.5	154.0	198.6	211.3
355	Special industry machinery	29.6	28.5	42.7	66.9	152.8	148.7
386	Photographic equipment and supplies	7.6	10.5	56.2	38.9	210.7	261.4

[1] Data not permitted to be disclosed.

SOURCE: Authors' calculations from data provided by the Covered Employment and Wages (ES-202) program, Bureau of Labor Statistics.

ing industries in Texas—electronic components and accessories, communications equipment, aircraft and parts, and computer and office equipment—had location quotients above 100 in 1994. All four are widely viewed as strategically important R&D-intensive industries, and Texas location quotients generally fell between the highest and lowest scores of the two comparison States. But both California and Massachusetts were specialized in a number of other durable goods industries: three of the instruments and related products group (SIC's 381, 382, and 384) and guided missiles and space vehicles in both States, and special industry machinery in Massachusetts.

Other things equal, then, most R&D-intensive durable goods manufacturing industries in Texas were less specialized than in California and Massachusetts and, in the national hierarchy of R&D-intensive industries, were less prominent participants in production for external markets.[23] The same could be said for the service industries: of the five such industries, Texas was specialized only in engineering and architectural services, and the degree of specialization was not particularly high, as measured against the two comparison States. Both California and Massachusetts were specialized in three service industries (SIC's 737, 873, and 874). However, in the first of these (computer and data-processing services), the difference between the Texas and California location quotients was so small (97.9 versus 102.3), that the two States were almost equally specialized.

As we might expect, location quotients for 1988 and 1994 indicate that in several industries, differences in proportional shifts in employment at the national and State levels increased the degree of Texas-based R&D-intensive industry specialization. The most significant change was in computers and office equipment, for which the Texas location quotient moved from 68.6 to 112.1. As noted earlier, employment expanded by more than one-third in Texas, but fell by about half in Massachusetts and by lesser, but still considerable, percentages in California and across the Nation. Elsewhere in durable goods, a similar pattern of employment change in communications equipment resulted in a slightly more specialized Texas-based employment concentration. In aircraft and parts production, employment declined in Texas by a smaller percentage than it did in either of the two comparison States or the Nation as a whole, and by 1994, this resulted in a degree of specialization that rivaled California's. In services, Texas' degree of specialization in engineering and architectural services increased over the 6-year interval. The State also increased its location quotients in all four of the instruments industries, but did not become nationally specialized in any. Quotients for medical and surgical instruments and measuring and controlling devices increased in all three States, an indication that the relative weight of employment concentrations in these industries may be moving away from the rest of the Nation and toward Texas, California, and Massachusetts.

Despite some small downward movements in the associated location quotients, Texas maintained its overwhelmingly high level of specialization in the petroleum extraction, industrial organic chemicals, and petroleum-refining industries. The State's specialization in electronic components and accessories also lessened, but not enough to threaten the status of Texas as a national region for the production of these goods. At the other end of the spectrum, one of the few R&D-intensive industries in which employment rose nationally, but fell in Texas, was agricultural chemicals (SIC 287). This shift of employment out of the State—apparently, to California and other parts of the country—resulted in a significant lessening of the industry's degree of employment specialization in Texas. Finally, the relative rates of decline in employment in guided missiles and space vehicles—86.5 percent in Texas, compared with 54.6 percent in Massachusetts and 36 percent in California—were such that Texas became a very minor participant in the manufacture of these products for export between 1988 and 1994.

High-tech contribution to the economy

For some time now, Texas has been an important center of R&D-intensive high-tech industry in the United States. The newest evidence that we bring to bear on this assertion is that, unlike the situation in the two comparison States and the Nation, R&D-intensive industries in Texas have made a positive contribution to State employment growth over the last several years. But as we noted at the outset, this dynamism is more complex than it at first appears. Total employment growth in Texas high-tech industries amounted to only a little more than 40,000, or an average of about 6,700 jobs per year between 1988 and 1994. The aggregate dimensions of employment change in the Texas R&D-intensive sector are therefore less important than the relative concentrations of industry employment (as measured by the location quotient), because the latter identify the indigenous technical specialties that distinguish Texas high-tech industries from their counterparts elsewhere. In turn, a region's specialized industries produce goods and services whose technical sophistication or overall quality make them the commodities "of choice" for customers outside the region. Over the long term, these specialties are likely to be important contributors to State or regional economic performance.

In this sense, although chemicals and petroleum probably will continue to account for only a stable share of jobs in the Texas R&D-intensive sector, their remaining concentrations of employment are still the most important distinguishing feature of the State's high-tech industry. Despite the fact that its natural endowments of onshore oil and gas are dwindling, Texas is the core State in one of the Nation's preeminent chemical-producing regions. Houston and the Texas Gulf

Coast are home to the administrative, research, and production facilities of many of the world's largest petrochemical companies and related support firms. Total employment in the eight chemical industries in Texas increased 8.6 percent (approximately 6,700 jobs) over the 6-year period studied, at the same time that national employment in the chemical industry was essentially static.

Moreover, while the petroleum industry is well into the mature stages of its life cycle, hydrocarbon energy technology will continue to dominate production processes in the advanced industrial world for the foreseeable future. Demand is clearly one spur to technical innovation, and Texas' indigenous specialty in engineering and architectural services—of which the petroleum engineering services industry (in SIC 8711) is a component—is generating new knowledge and equipment that enable petroleum deposits in previously inaccessible waters of the Gulf of Mexico to be exploited. Recent accounts indicate that Houston is now the principal locus of a boom in deepwater oil and gas extraction.[24] This is evidence of technological dynamism linked across two R&D-intensive goods- and service-producing industries in which Texas is specialized.

The historical persistence of the oil and gas share of employment in Texas high-tech industry is at least one reason that durable goods manufacturing, along with services, makes up smaller proportions of R&D-intensive industry employment than in California and Massachusetts. Yet it would be inaccurate to suggest that there are no indigenous segments of high-tech durable goods production in the State or that they have not made significant contributions to the Texas economy. For instance, as the result of a wartime decision by the Federal Government to move a portion of the industry away from vulnerable coastal cities, aircraft and helicopters have been made in the Dallas-Fort Worth area since the early 1940s.[25] And in the 1950s, the invention of the integrated circuit and the invention of the silicon transistor at Texas Instruments fueled considerable employment growth in technology-intensive durable goods manufacturing.[26] Texas Instruments' contribution to the microelectronics revolution was, of course, homegrown, while aircraft production in Texas was imported, but in both cases the State has been a specialized producer in these industries for some time.

One outcome of the recent employment growth scattered across the Texas R&D-intensive durable goods sector was that computers and office equipment took a nationally specialized position alongside the State's electronic components, aircraft, and communications equipment industries. But because the computer and electronics industries were essentially *founded* in States such as California and Massachusetts, and leading firms grew to national and international prominence in those places, Texas is still widely viewed as an "advanced production area," rather than a core region, for high-tech durable goods.[27] This assessment may be outdated, because low taxes and low land and labor costs[28] have positioned Texas to gain employment through the shifting of existing jobs in the computer and electronics industries from other parts of the Nation. These factors will continue to make the State an attractive site for further waves of corporate relocations or new "technical" branch plants. And the R&D-intensive durable goods firms that have moved to or were founded in Austin, Dallas-Fort Worth, and Houston over the last 15 years may yet be able to re-create the self-sustaining rounds of innovation that characterized the growth of firms in places such as California and Massachusetts during the initial years of the microelectronics revolution.

Still, it is important to remember that national employment in R&D-intensive durable goods *declined* over the period examined in this article. The decline is attributable to falling or, at best, stable defense expenditures, automated manufacturing processes that reduce the need for unskilled and semiskilled workers, and the migration of increasingly routinized manufacturing to low-cost offshore locations.[29] These forces are potentially more detrimental to R&D-intensive durable goods employment in Massachusetts and California, where the durable goods industry (and the defense industries that rely on it) constitutes a larger proportion of employment in the R&D-intensive sector, than in Texas. But this is not to say that such forces are absent in Texas: as we (and others) have observed, labor-saving processes developed by R&D-intensive industries cause intraindustry changes, in Texas as well as elsewhere.[30] The category of computers and office equipment provides the most dramatic example of these changes: computing power has continually *increased* over the last two decades, while the price of that power has *decreased*.[31] This has lowered the cost of automating design and manufacturing processes in computers and other civilian high-tech manufacturing, reducing the number of workers required at any output level. The result has been rising output, falling employment, and the likelihood that these trends will continue. The Bureau of Labor Statistics projects annual output in the computer industry to rise by 7.3 percent and annual employment to fall by 2.6 percent between 1994 and 2005.[32]

As products and processes evolve to maturity in firms that migrated to Texas from higher cost locations, the pressure to reduce costs also reduces employment by encouraging more automation or further migration to even lower cost sites—for example, the *maquiladora* manufacturing complexes just south of the Rio Grande. Thus, the State's ability to continue to expand employment in R&D-intensive durable goods may be limited. Furthermore, employment levels may never be high enough for Texas to move from an advanced production area to the status of a core State in this sector of the high-tech market.[33]

Finally, as in California and Massachusetts, R&D-intensive service industries were strongly represented among Texas

high-tech industries. Indeed, the five R&D-intensive services posted the largest net employment gain (approximately 61,500) of the four subgroups (oil and gas extraction and refining, chemicals, durable goods, and services) in the Texas R&D-intensive sector. But Texas was nationally specialized only in engineering and architectural services, was slightly below California's marginal level of specialization in computer and data-processing services, and was much further behind in management and public relations and research and testing services. This situation may persist for the same reason that it may be difficult for Texas to become a core State for the production of durable goods in which it is not already specialized: even though some management and research service firms in Texas could be characterized as innovative or in the early growth stages of their life cycles, those in California and Massachusetts may occupy a superior position in the national hierarchy of R&D-intensive service production simply because they entered their markets first.[34] The window of locational opportunity that gave these high-tech service providers their initial lead already may have closed for firms based elsewhere seeking to overtake them.

Nonetheless, in percentage terms, R&D-intensive services grew much faster in Texas than they did nationally or in the two comparison States. This fact, by itself, may indicate that R&D-intensive services (outside of engineering and architectural services) will *not* be consigned to a parochial role in Texas, relative to the nationally specialized high-tech service industries in California and Massachusetts. The overall growth of the Texas economy is likely to continue to generate strong demand for these services in the future,[35] and it also seems likely that R&D-intensive services will make the biggest positive contribution to the statewide change in employment in all R&D-intensive industries in the 1990s. In the process, computer and data-processing services may unseat crude petroleum and natural gas as the largest single R&D-intensive industry in the State.

In one form or another, the latter event has been predicted—and eagerly anticipated—by many observers of the Texas economic scene. If it occurs, it would exemplify a process that often unfolds in regions characterized by technologies that lag behind the leading edge. For example, in the early 1980s, oil and gas extraction dominated the high-tech industry sector in Texas, as did microelectronics in California and Massachusetts. Regions such as Texas can sometimes leapfrog the leading, but maturing, technical specializations, to another generation of machines. The transition from oil to services in Texas high-tech employment would be just such an event: a shift in the State's center of economic gravity from the extraction and secondary processing of resource-based goods to the production of intangible goods, largely skipping the stage in which durable goods manufacturing dominates the landscape.

Overall, then, we see three distinct layers of R&D-intensive industries in Texas, differentiated by the stage each occupies in its life cycle. The petroleum and chemical industries were part of a first generation of R&D-intensive industries. Despite evidence of renewed technological vigor in oil and gas extraction, and the likelihood that these industries will continue to make strong contributions to State product and income flows, both are now quite mature, with limited capacity for employment growth. The second-generation, R&D-intensive durable goods manufacturing industries also may be approaching maturity, even though statewide employment opportunities in such industries may be increasing through the relocation of firms founded elsewhere. Finally, as in California and Massachusetts, Texas employment levels probably will be augmented the most from the expansion of the high-tech service sector, the most recent generation of R&D-intensive industry in the State. □

Footnotes

ACKNOWLEDGMENT: The authors thank Bernard Bell for his assistance in preparing the data used in this report, Cheryl Abbot for her able research assistance, and Bob Gaddie for his comments.

[1] See R. P. Oakey and S. Y. Cooper, "High technology industry, agglomeration and the potential for peripherally cited small firms," *Regional Studies*, vol. 23, no. 4, 1989, pp. 347–60; A. Saxenian, "Silicon Valley and Route 128: regional prototypes or historic exceptions?" in M. Castells, ed., *High Technology, Space, and Society* (Beverly Hills, CA, Sage, 1985), pp. 81–105; and A. J. Scott, "The collective order of flexible production agglomerations: lessons for local economic development policy and strategic choice," *Economic Geography*, vol. 69, no. 3, 1992, pp. 219–33, for discussions of the differences that exist among various so-called core high-technology areas, such as Silicon Valley, Route 128 in Massachusetts, and Southern California. It is important to note that, while these areas have enjoyed rapid and self-sustaining rounds of innovation leading to high levels of local employment growth, differences in industrial structure can lead to far less spectacular employment performance elsewhere. For example, R. Miller and M. Cote, in *Growing the Next Silicon Valley: A Guide for Successful Regional Planning* (Lexington, MA, Lexington Books, 1987), identified 30 regional clusters of high-technology industry with annual employment growth rates ranging from –1.11 percent to 39 percent.

[2] See R. W. Riche, D. E. Hecker, and J. U. Burgan, "High technology today and tomorrow: a small slice of the employment pie," *Monthly Labor Review*, November 1983, pp. 50–58.

[3] See J. P. Campbell and S. Goodman, *High-technology employment in Texas* (Austin, TX, University of Texas, Bureau of Business Research, 1985); J. P. Campbell, *Comparative High-Tech Industrial Growth: Texas, California, Massachusetts and North Carolina* (Austin, TX, University of Texas, Bureau of Business Research, 1986); and *Defense Transition: Economic Promise for Texas* (Austin, TX, Governor's Office of Economic Transition, 1993), for three such attempts.

[4] P. Hadlock, D. Hecker, and J. Gannon, "High technology employment: another view," *Monthly Labor Review*, July 1991, pp. 26–30, defined R&D-intensive high-technology industries as high-technology industries in which the percentage of workers who spend the majority of their time engaged in R&D activities—as designated by the employer in BLS occupational surveys—was at least 50 percent greater than the average percentage for all industries. This metric generated a list of 30 R&D-intensive high-tech industries that we examine in this article.

[5] Riche, Hecker, and Burgan, "High technology today and tomorrow."

[6] Hadlock, Hecker, and Gannon, "High technology employment."

[7] J. A. Schumpeter, *The Theory of Economic Development* (London,

McGraw =Hill, 1934).

[8] For example, with transistor technology approaching maturity in the 1960s, bipolar integrated logic circuits were introduced. As this technology matured, advances in metal oxide semiconductor technology enabled major breakthroughs to occur in microprocessors and electronic memory. Over time, the end uses of semiconductors have expanded to include radios, televisions, computers, VCR's and a wide variety of other consumer and specialty items. (See G. Colclough and C. Tolbert, II, *Work in the Fast Lane: Flexibility, Divisions of Labor, and Inequality in High-Tech Industries* (Albany, NY, State University of New York Press, 1992).

[9] Miller and Cote, *Growing the Next Silicon Valley*; Scott, "The collective order of flexible production agglomerations."

[10] R. Vernon, "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics*, vol. 80, 1966, pp. 190–207.

[11] The product cycle has its corollaries as well: the profit cycle (see A. Markusen, *Profit cycles, oligopoly and regional development* (Cambridge, MA, MIT Press, 1985) and the innovation and manufacturing process cycle (see J. M. Utterback and W. J. Abernathy, "A dynamic model of process and product innovation," *Omega*, vol. 3, 1975, pp. 639–56; and L. Suarez-Villa, "Industrial export enclaves and manufacturing change," *Papers of the Regional Science Association*, vol. 54, 1984, pp. 89–111).

[12] A. Glasmeier, "High-tech industries and the regional division of labor," *Industrial Relations*, vol. 25, 1986, pp. 197–211; and "Factors governing the development of high tech industry agglomerations: a tale of three cities," *Regional Studies*, vol. 22, 1988, pp. 287–301.

[13] See H. Goldstein and E. E. Malizia, "Microelectronics and economic development in North Carolina," in D. Whittington, ed., *High Hopes for High Tech* (Chapel Hill, NC, University of North Carolina Press, 1985), pp. 225–55; and D. Lyons, "Agglomeration Economies among High Technology Firms in Advanced Production Areas: The Case of Denver/Boulder," *Regional Studies*, vol. 29, 1995, pp. 265–78.

[14] A. Saxenian, "The Urban Contradictions of Silicon Valley: regional growth and the restructuring of the semiconductor industry," *International Journal of Urban and Regional Research*, vol. 7, 1983, pp. 237–62.

[15] See D. Lyons, "Agglomeration economies"; and R. Smilor, G. Kozmetsky, and D. Gibson, *Creating the Technopolis: Linking Technology, Commercialization, and Economic Development* (Cambridge, MA, Ballinger, 1988).

[16] Scott, "Collective order of flexible production agglomerations."

[17] Nationally, employment in R&D-intensive industries made up 8.9 percent of all private employment.

[18] Our definition of "defense dependent" includes those industries in which defense-related output represented at least 50 percent of total industry output in 1987, the most recent peak year for U.S. defense expenditures. See Norman Saunders, "Defense spending in the 1990's: the effect of deeper cuts," *Monthly Labor Review*, October 1990, pp. 3–15; and "Employment effects of the rise and fall of defense spending," *Monthly Labor Review*, April 1993, pp. 3–10, for a more detailed explanation of this approach to the classification of defense-dependent industries.

[19] See Niles Hansen, "The Nature and Significance of Network Interactions for Business Performance and Exporting to Mexico: An Analysis of High-Technology Firms in Texas," March 1996, Department of Economics, University of Texas at Austin (mimeo), for recent survey data on the relatively high levels of export intensity of high-tech firms in Texas.

[20] See James C. Franklin, "Industry output and employment projections to 2005," *Monthly Labor Review*, November 1995, pp. 45–59.

[21] Mathematically, the location quotient for any R&D-intensive industry i can be expressed as

$$LQ_i = ((e_{ij} / e_i) / (E_{JN} / E_N)) \, X 100.$$

where

e_{ij} = employment in State i and R&D-intensive industry j;

e_i = total employment in all R&D-intensive industries for State i;

E_{JN} = employment in R&D-intensive industry J for the Nation N; and

E_N = total employment in all R&D-intensive industries for the Nation, N.

See Avrom Bendavid-Val, *Regional and Local Economic Analysis for Practitioners* (New York, Praeger, 1991), for a further discussion of interpreting the location quotient and arithmetic variants of the preceding algorithm. See also A. Markusen, P. Hall, and A. Glasmeier, *High Tech America: The what, how, where, and why of the sunrise industries* (Boston, Allen and Unwin, 1986), for an example of the use of the location quotient in looking at variations in R&D-intensive industry employment across States.

[22] Of course, the location quotient suffers from a number of well-documented limitations: it assumes that consumption patterns and labor productivity do not vary geographically, that each industry produces a homogeneous good or set of services across States, and that import flows have no impact on a region. (See Joseph Persky, David Ranney, and Wim Wievel, "Import Substitution and Local Economic Development," *Economic Development Quarterly*, vol. 7, no. 1, 1993, pp. 18–29.) But this is true for almost any conceivable static measure that compares the characteristics of State economies. More problematic are the unavoidable anomalies that our method of calculating location quotients generates. For instance, a small high-tech industry that is the only high-tech industry in a State and that is clearly incapable of meeting all the State's need for the good or service it produces could have a very large location quotient. (An example could be the paints and allied products industry.) Despite these limitations, our location quotient is still useful in the context of a three-State comparison.

[23] Because we only have data for workers on American soil, this is probably an underestimate of the degree of export intensity for some of the Texas-based durable goods industries. The *maquiladora* manufacturing complexes situated on the southern banks of the Rio Grande River in Mexico produce a range of technologically sophisticated products, including electronics (SIC's 362, 366, and 367). While workers in these plants are separated from their counterparts in the Texas-based R&D-intensive sector by the U.S.-Mexico border, the two are intimately linked as the production units of U.S.-owned "twins" from which subassemblies and finished goods are exported back across the river and from there to the rest of the Nation and the world.

[24] See Caleb Solomon, "What's Up in Houston? At Long Last, It's Energy," *The Wall Street Journal*, Jan. 17, 1996, p. T1; Bill Gilmer, *Finding New Ways to Grow: Recovery in the Oil Patch*, Federal Reserve Bank of Dallas, Houston Branch, July 1996; and John Sharp (Texas comptroller of public accounts), "The Oil Boom—1990s Style," *Fiscal Notes*, April 1996, pp. 7–8.

[25] See William G. Cunningham, *The Aircraft Industry: A Study in Industrial Location* (Los Angeles, Morrison, 1951).

[26] In addition, automobiles have been produced in Dallas-Fort Worth since 1913. (See W. H. Read and J. L. Youtie, "Texas Telecom Corridor," *Economic Development Review*, Summer 1994, pp. 27–31.)

[27] See T. Arnold, "Texas Aerospace, Defense, and Dual-Use Technologies," *Texas* (Dallas, Texas Innovation Network, 1993); Glasmeier, *High Tech America* and "Factors governing the development of high tech industry agglomerations"; Miller and Cote, "Collective order of flexible production agglomerations"; and Read and Youtie, "Texas Telecom Corridor."

[28] D. Ann Petersen and Michelle Thomas, "From Crude Oil to Computer Chips: How Technology is Changing the Texas Economy," *The Southwest Economy* (Federal Reserve Bank of Dallas), vol. 6, pp. 1–5.

[29] See *U.S. Defense-Related Employment Retrenches*, Summary 95–7 (Bureau of Labor Statistics, May 1995); Franklin, "Industry output and employment projections"; and *Occupational Outlook Handbook* (Bureau of Labor Statistics, 1994), p. 394.

[30] See Edward J. Malecki, *Technology and Economic Development: The Dynamics of Local, Regional and National Change* (New York, Longman Scientific and Technical, 1991).

[31] This perverse economic logic, known as Moore's law, also holds for other types of consumer electronics manufacturing (for example, cellular phones and pagers); see *Business Week*, Mar. 5, 1995.

[32] Franklin, "Industry output and employment projections."

[33] Scott, "Collective order of flexible production agglomerations."

[34] This is even more notably the case among the software and systems design components of computer and data-processing services in States other than California and Massachusetts—for example, Washington State. (See, for instance, R. A. Chase and D. C. Inveen, *An Economic Assessment of the Wash-*

ington State Software Services Industry (Olympia, WA, Washington State Department of Trade and Economic Development, 1989); P. Haug, "Regional formation of high-technology service industries: the software industry in Washington State," *Environment and Planning A*, vol. 23, 1991, pp. 868–84; and J. Campbell, "Mid-Life Crisis on Route 128," *Regional Review*, vol. 5, no. 3, 1995, pp. 6–11.

[35] C. Miller and H. T. Sanders, *Urban Texas: Politics and Development* (College Station, TX, Texas A&M University Press, 1990).

LABSTAT available via World Wide Web

LABSTAT, the Bureau of Labor Statistics public data base, provides current and historical data for many BLS surveys, as well as numerous news releases.

LABSTAT Public Access has introduced a new production Internet service over the World Wide Web. BLS and regional offices programs are described using hypertext pages. Access to LABSTAT data and news releases is provided by a link to the BLS gopher server. The URL is

http://stats.bls.gov/blshome.html

If you have questions or comments regarding the LABSTAT system on the Internet, address e-mail to:

labstat.helpdesk@bls.gov

Home-based workers: data from the 1990 Census of Population

Data from the Public Use Microdata Sample of the 1990 Census of Population show that home-based workers are more likely than onsite workers to be self-employed, to live in rural areas, to work nonstandard hours, to be women, to be white, and to work in service industries and occupations

Linda N. Edwards and Elizabeth Field-Hendrey

As communication and computer technology continue to advance, the facility with which people can engage in paid work at home, rather than traveling to an office or factory, has become part of the folklore of the contemporary American economy. In a dramatic contrast to the changes stimulated by the industrial revolution, which drove workers out of the home and into the factory, the current technological revolution has created an opportunity for the return of market work to the home. Recent sample surveys conducted by Link Resources Corporation report that the number of people who do some of the work for their primary jobs at home grew, on average, 8.9 percent annually between 1989 and 1993; by the latter year, 33.0 percent of the adult work force engaged in some work at home.[1] A more reliable estimate from a special supplement to the May 1991 Current Population Survey (CPS) indicates that 18.3 percent of all nonfarm workers were "engaged in some work at home as part of their primary job."[2]

Not all of the people who do some work at home, however, are home-based workers. Many of them, such as schoolteachers, are simply taking work home from the office to finish in the evenings and are not explicitly remunerated for that work. Indeed, according to William G. Deming,[3] 60 percent of workers who do some work at home are not explicitly paid for it. Further, of the 40 percent who are compensated for their work at home (either as wage and salary workers or as self-employed workers), about half worked fewer than 8 hours per week at home, and only 14.5 percent worked 35 or more hours at home. Thus, the CPS phrase "engaged in some work at home as part of [one's] primary job" encompasses a wide variety of work styles.

Our objective in this article is to present a study of those workers whose primary place of employment is their own home—either as a paid employee or as a self-employed worker. More specifically, we seek to provide a detailed description of home-based workers in 1990, using the Public Use Microdata Sample (PUMS) of the 1990 Census of Population. Our description focuses on demographic and economic variables such as sex, age, race, marital status, family composition, class of worker, hours worked, wages, and industry and occupation of employment. Special attention is directed to how male and female home-based workers differ and to how home-based workers differ from other workers.

Why study home-based workers?

An up-to-date description—a "taxonomy"—of home-based workers is important for several reasons. First, although the actual number of home-based workers is not large at present, it has been growing since the early 1980s and is likely to continue to grow. Data from the U.S. Censuses of Population show that the number of home-based workers fell from 4.7 million in 1960 to 2.2 million in 1980, but then rose to 3.4 million in 1990.[4] The growth is attributable in part to the steady advance in communications and computer technology. However, technological advance is not the only factor contributing to the growth of home-based work; the continued rise in women's

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labor force participation and in two-career families and the increased popularity of small-business entrepreneurship are also trends that make this work style more attractive. In addition, the Clean Air Act, which requires employers in America's most polluted cities to reduce the commuting of their employees by 25 percent, is expected to increase the support of business management for telecommuting.[5]

Second, the coordination of workplace obligations with family responsibilities is a topic that has been much in the national consciousness as women spend a larger and larger proportion of their lifetimes in the labor market. Not only child care is at issue; increased longevity means that a growing proportion of families will have elderly disabled or frail relatives who require care. Although the most frequently proposed policy response is greater government involvement in the provision of day-care facilities for children and for the elderly, home-based work is a somewhat overlooked institutional arrangement that can help family members balance the conflicting demands of home and work.

Finally, better knowledge of the characteristics of home-based workers will help us evaluate the various arguments put forward in the longstanding and continuing controversy about the desirability of this form of work organization. From the early 1940s until January 1989, industrial homework was banned in seven industries.[6] The bans were established in response to evidence that in these industries employers were routinely violating both minimum-wage and child labor laws with respect to home-based workers.[7] The bans remained virtually unchanged until 1981, when the Reagan Administration initiated actions to rescind them. After a series of proposed rule changes and hearings, effective January 9, 1989, the bans were lifted in all of the remaining industries,[8] except women's apparel and "unsafe" jewelry production. However, recent reports of an expansion in illegal home sewing of women's apparel by immigrant labor mean that this will continue to be a public policy issue.[9] Further, the growth in clerical homework, especially using home computers, has caused the Service Employees International Union to call for the introduction of a ban on this type of homework.[10] Homework using computers (telecommuting) also has been opposed by the Communication Workers of America.[11]

The conflicting views about the desirability of home-based work arise from the two contradictory theories on which they are based.[12] The first depicts homeworkers as a relatively advantaged group of individuals who have chosen to work at home to gain flexibility and to better control their time. In this view, homework allows family members to care for children or elderly or disabled relatives, while at the same time participating in the labor market. Homework also facilitates the employment of the disabled, according to this theory. That these homeworkers must forgo fringe benefits is not considered important, because they typically receive such benefits from their spouses' employers. The other theory portrays homeworkers as an exploited group, "forced to work for low wages, with few if any benefits, in substandard working conditions, [and] often relying on the supplementary labor of young children."[13] One or the other of these two views underlies most of the arguments that have been advanced for or against home-based work. A detailed statistical description of home-based workers, such as this article presents, will permit a more dispassionate and objective evaluation of these theories.

Home-based workers in the 1991 CPS

The best source of recent data on home-based workers, aside from the 1990 Census of Population, is a special supplement to the CPS taken in May 1991.[14] This supplement covers all nonfarm workers 16 years and older who did any work at home for their regular job.[15] Under that criterion, 20 million nonfarm employees worked at home in 1991, 18.3 percent of those who worked. Most respondents in the sample who did work at home, however, had an onsite work location at which most of their work was done. To identify those in the sample most likely to be home-based workers, Deming compared hours worked at home with total hours worked. Workers for whom both of these figures were the same—that is, those who worked entirely at home—are likely to be home-based workers. Deming reported that 1.518 million workers worked entirely at home (either as wage and salary employees or as self-employed workers) and that the mean weekly number of hours they worked was 35.8. Sixty-seven percent of these workers were women, whereas for all workers, the proportion of women was substantially smaller, 46 percent.

The only other information available about persons who work entirely at home (home-based workers, for purposes of this discussion) is with regard to their industry and occupation. Industrial and occupational distributions of employment for home-based workers and all workers, computed from data in Deming, are shown in table 1. Consider first the industries in which these workers were employed. Slightly more than 70 percent of all home-based workers were involved in service industries, whereas the corresponding percentage for all workers was 35.1 percent. Among the various services the two groups worked in, the largest difference was with respect to personal services: about 21 percent of all home-based workers worked in personal services, whereas for all workers, the percentage was under 5.4 percent. (The latter figure, which is actually for the category of "all other services," includes personal service industries).[16] By contrast, the proportions of home-based workers in manufacturing, retail trade, and "other industries" are substantially smaller than the corresponding proportions for all workers.

There are also differences between home-based workers

Table 1. Industrial and occupational structure of all workers and of persons who worked entirely at home, nonfarm only, May 1991

Characteristic	All workers		Persons who worked entirely at home	
	Number	Percent	Number	Percent
All industries	109,126	100.0	1,518	100.0
Manufacturing	19,731	18.1	121	8.0
Retail trade	18,054	16.5	117	7.7
Services	38,335	35.1	1,071	70.6
Business and repair services	7,104	6.5	225	14.8
Personal services	[1]	[1]	325	21.4
Professional services	25,350	23.2	469	30.9
Social services	[2]	[2]	230	15.2
Other services	5,881	5.4	52	3.4
Other industries	33,006	30.2	209	13.8
All occupations	109,126	100.0	1,518	100.0
Managerial and professional specialty	29,971	27.5	497	32.7
Executive, administrative, and managerial	14,384	13.2	210	13.8
Professional specialty	15,587	14.3	287	18.9
Technical, sales, and administrative support	34,554	31.7	341	22.5
Sales occupations	13,177	12.1	194	12.8
Administrative support, including clerical	17,786	16.3	140	9.2
Other technical, sales, and administrative support	3,591	3.3	7	.5
Service occupations	14,955	13.7	498	32.8
Personal service occupations	[2]	[2]	462	30.4
Other service occupations	[2]	[2]	36	2.4
Precision production, craft, and repair	12,608	11.6	112	7.4
Other occupations	17,038	15.6	70	4.6

[1] Included with "other services."

[2] Not available.

SOURCE: William G. Deming, "Work at home: data from the CPS," *Monthly Labor Review*, February 1994, tables 2 and 4, pp. 16, 18.

and all workers in the occupational distributions, although these are not nearly as dramatic. The occupational category in which there is the largest difference is "service occupations": 13.7 percent of all employees fall into this category, whereas the corresponding percentage for home-based workers is 32.8 percent. Almost all of the home-based workers who were employed in service occupations were in personal service occupations (92.7 percent), while for all workers, this subcategory was not large enough to be shown separately. Given the nature of personal services (see footnote 7), it is likely that a large proportion of home-based workers in personal service occupations are self-employed small entrepreneurs. The other occupational category with a larger representation among home-based workers than onsite workers (32.7 percent versus 27.5 percent) is "managerial and professional specialty" occupations, another category in which there are likely to be a large number of self-employed small-business people.[17] On the other hand, the "technical, sales, and administrative support" and "other occupation" categories have lower representations among home-based workers.

These differences between all workers and home-based workers in the 1991 CPS supplement, as reported by Deming, raise a number of questions: Are home-based workers primarily self-employed? What is the relation between the family composition of workers and whether they are home-based workers? How does the propensity to be a home-based worker differ by sex, race, marital status, number and age of children, and type of residence (urban versus rural)? Are home-based workers more likely to work part time? More generally, how do the hours and weeks worked by home-based workers compare with those of other workers? And how do their wages differ? These are the questions we address in our analysis of census data.[18]

Home-based workers in the 1990 census

The PUMS data. We use data from the 5-percent PUMS of housing units from the 1990 Census of Population of the United States and the persons who reside in those units. The data and sampling procedure are fully described by the Bureau of the Census.[19] We include in our analysis all workers aged 25 to 55 years who do not live in group quarters, who are not in the Armed Forces, and who identify themselves as home-based workers. Identification as a home-based worker is based on answers to the journey-to-work question (no. 23A) in the Census of Population, which asked, "How did this person usually get to work last week?"[20] We define home-based workers as persons whose response to this question was that they "worked at home." Note that the survey question used to identify home-based workers in the Census of Population is likely to yield a somewhat different definition of home-based workers than would be obtained from the CPS questionnaire. Note also that we exclude from our sample those whose response would have classified them as home-based workers during the week the census was taken, but who did not work in 1989 or whose earnings information for 1989 was not consistent with their reported class-of-worker status in 1990. On the other hand, we *include* farm workers. For all of these reasons, our results are not directly comparable with Deming's findings.

We focus on workers in the prime working years, 25 to 55,

so as not to confuse the work site decision with decisions regarding schooling and retirement: the majority of those in the 25- to 55-year age group will have completed their schooling and will not yet have entered retirement.

How do home-based workers differ from onsite workers? To see how home-based workers differ from other workers, we present, in tables 2 and 3, a number of statistics pertaining to both groups of workers. Table 2 contains data on demographic and socioeconomic characteristics, and table 3 contains data on the occupation and industry of employment, of these workers. Because there are so many more onsite workers than home-based workers, the computations for onsite workers use a 0.04 subsample of the 5-percent PUMS, yielding a .2-percent sample from the entire population of onsite workers.[21]

The most significant difference between home-based and onsite workers is that home-based workers are much more likely to be self-employed: sixty-three percent of home-based workers fell into this category, whereas the corresponding percentage for onsite workers was 5.5 percent. This is true for both men and women: for men, the proportions that were self-employed were 62.9 percent for home-based workers and 7.3 percent for onsite workers, while for women, the corresponding proportions were 63.1 percent and 3.3 percent.

A second important difference pertains to the residence of the workers. The proportion of home-based workers who live in rural areas was 38.6 percent; the corresponding figure for onsite workers was 24.0 percent. Further, for home-based workers, about 30 percent of the rural residents were in farm areas, whereas for onsite workers, the proportion was much smaller, about 4 percent. This greater propensity of home-based workers to live in rural areas was exhibited for both men and women, although the tendency was much more pronounced for men: slightly more than 48 percent of male home-based workers lived in rural areas, while the corresponding proportion for male onsite workers was 24.5 percent. For women, the proportions living in rural areas were 32.0 percent and 23.3 percent, respectively. Thus, home-based workers—especially men—were much more likely than all other workers to be located in rural areas, both farm and nonfarm.

Differences between home-based and onsite workers with regard to sex, family structure, age, race, ethnicity, and the presence of a disability are also evident, though less striking than the preceding differences. Most important are sex-related differences. Women accounted for 59 percent of all home-based workers, but just 46 percent of onsite workers. Moreover, home-based women workers were much more likely to be married with a spouse present than were onsite women workers (80.4 percent versus 63.5 percent). In addition, 29.9 percent of married home-based women workers had children under the age of 6, compared with 15.1 percent for married onsite women workers.[22] More generally, women home-based workers had greater levels of fertility than did women onsite workers: the average number of children ever born for the former was 2.17, whereas it was 1.72 for the latter. For men, there was little difference in family structure: almost 69 percent of home-based men and 69.3 percent of onsite men were married with a spouse present. (Data on the number of children are not available for men.)[23] Home-based workers tended to be older than onsite workers; specifically, home-based workers were less likely than onsite workers to be 25 to 34 years old and more likely to be 45 to 55 years old. Blacks were less likely than whites to be represented among home-based workers: whereas 10.1 percent of onsite workers were black non-Hispanic, this group made up just 3.3 percent of home-based workers. Like blacks, Hispanic workers and workers classified as "other" with regard to race also were less likely than whites to be represented among home-based workers. Thus, while white non-Hispanic workers accounted for 79.0 percent of onsite workers, they made up 89.0 percent of home-based workers. Finally, home-based workers were almost twice as likely to be disabled as were onsite workers (5.5 percent versus 3.3 percent).

Also included in table 2 are data on educational attainment, family income, earnings, wages, and hours and weeks worked. Strikingly, there was little difference in the educational attainment between home-based and onsite workers, both for men and for women. Nor was there a large difference in family income or weeks worked. Average weekly hours worked were also approximately equal in the two groups, but this similarity is misleading: the distributions of hours worked by home-based and onsite workers reveal that, while about two-thirds of onsite workers worked between 35 and 45 hours per week, the proportion was closer to one-third for home-based workers. Thus, home-based workers were much more likely to choose nonstandard hours—either fewer than 35 hours or more than 45 hours per week—than were onsite workers. A partial explanation for this greater flexibility in scheduling on the part of home-based workers is the dramatically larger proportion of such workers that are self-employed and therefore have greater control over their work hours. This is evident in table 4, which shows the distribution of weekly hours worked for both self-employed and wage and salary home-based and onsite workers. The self-employed were less likely to work 35 to 45 hours per week than were wage and salary employees, regardless of whether the former were or were not home based. But even within each class-of-worker status, home-based workers still displayed greater flexibility in hours worked: in all cases shown, home-based workers were less likely than onsite workers to be in the 35- to 45-hours category and more likely to work either fewer than 35 hours or more than 45 hours.

The other notable difference between home-based and

Table 2. Socioeconomic characteristics of workers aged 25–55, by work site and sex, 1990

Characteristic	Home-based workers						Onsite workers					
	Total		Men		Women		Total		Men		Women	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	1,542,268	100.0	634,642	100.0	907,626	100.0	66,931,950	100.0	36,231,350	100.0	30,700,600	100.0
Age:												
25–34 years	482,850	31.3	170,061	26.8	312,789	34.5	26,024,875	38.9	14,304,651	39.5	11,720,224	38.2
35–44 years	577,230	37.4	237,685	37.5	339,545	37.4	23,916,925	35.7	12,835,151	35.4	11,081,774	36.1
45–55 years	482,188	31.2	226,896	35.7	255,292	28.1	16,990,148	25.4	9,091,551	25.0	7,898,597	25.7
Marital status:												
Married, spouse present	1,166,386	75.6	436,436	68.8	729,950	80.4	44,611,749	66.7	25,123,549	69.3	19,488,200	63.5
With children under 6 years	(1)	(1)	(1)	(1)	271,083	29.9	(1)	(1)	(1)	(1)	4,623,875	15.1
With children 6–17 years	(1)	(1)	(1)	(1)	390,816	43.1	(1)	(1)	(1)	(1)	9,211,899	30.0
Not married or married without a spouse present	375,882	24.4	198,206	31.2	177,676	19.6	22,320,199	33.3	11,107,800	30.7	11,212,399	36.5
With children under 6 years	(1)	(1)	(1)	(1)	14,373	1.6	(1)	(1)	(1)	(1)	876,324	2.9
With children 6–17 years	(1)	(1)	(1)	(1)	37,526	4.1	(1)	(1)	(1)	(1)	2,722,550	8.9
Number of children ever born	(1)	(1)	(1)	(1)	2.17	(1)	(1)	(1)	(1)	(1)	1.72	(1)
Standard deviation	...	...	...	...	(1.52)	...	...	...	...	...	(1.49)	...
Race or ethnic group:												
White, non-Hispanic	1,372,449	89.0	570,388	89.9	802,061	88.4	52,886,527	79.0	28,827,176	79.6	24,059,351	78.4
Black, non-Hispanic	50,785	3.3	19,138	3.0	31,647	3.5	6,792,275	10.1	3,191,826	8.8	3,600,449	11.7
Other race	42,162	2.7	16,055	2.5	26,107	2.9	2,369,474	3.5	1,276,100	3.5	1,093,374	3.6
Hispanic origin	76,872	5.0	29,061	4.6	47,811	5.3	4,883,675	7.3	2,936,250	8.1	1,947,425	6.3
Disabled	84,828	5.5	39,589	6.2	45,239	5.0	2,225,672	3.3	1,375,048	3.8	850,624	2.8
Residence:												
Urban	946,680	61.4	329,230	51.9	617,450	68.0	50,853,225	76.0	27,301,300	75.4	23,551,925	76.7
Rural	595,588	38.6	305,412	48.1	290,176	32.0	16,078,723	24.0	8,930,049	24.6	7,148,674	23.3
Farm	178,163	11.6	123,768	19.5	54,395	6.0	641,977	1.0	298,376	.8	343,601	1.1
Nonfarm	417,425	27.1	181,644	28.6	235,781	26.0	15,447,206	23.1	8,631,673	23.8	6,815,533	22.2
Immigrant	133,563	8.7	52,571	8.3	80,992	8.9	6,739,298	10.1	3,873,149	10.7	2,866,149	9.3
Highest level of education completed:												
Eighth grade or less	90,860	4.7	52,560	6.4	38,300	3.5	2,531,450	3.8	1,680,924	4.6	850,526	2.8
Some high school	172,140	8.9	75,900	9.2	96,240	8.8	6,656,473	9.9	3,929,474	10.8	2,726,999	8.9
High school degree	623,100	32.4	255,720	30.9	367,380	33.5	21,321,348	31.9	10,977,073	30.3	10,344,275	33.7
Some college	554,800	28.8	207,640	25.1	347,160	31.6	19,410,247	29.0	10,050,949	27.7	9,359,298	30.5
Bachelor's degree	330,580	17.2	149,900	18.1	180,160	16.5	11,102,025	16.6	6,151,876	17.0	4,950,149	16.1
More than bachelor's degree	106,400	5.5	56,180	6.8	50,220	4.6	3,958,524	5.9	2,084,824	5.8	1,873,700	6.1
Presence of person(s) older than 65 in household	193,500	10.0	74,920	9.0	118,580	10.8	3,455,726	5.2	1,848,900	5.1	1,606,826	5.2
Mean family income, 1989	$47,359	...	$42,457	...	$50,787	...	$46,688	...	$47,083	...	$46,222	...
Standard deviation (dollars)	(42,623)	...	(37,381)	...	(45,623)	...	(33,206)		(33,176)	...	(33,234)	...
Self-employed	1,229,860	63.9	541,080	65.4	688,780	62.7	3,658,647	5.5	2,630,899	7.3	1,027,748	3.3
Mean annual earnings, 1989 (dollars)	$16,588	...	$25,619	...	$10,273	...	$25,604	...	$31,649	...	$18,469	...
Standard deviation (dollars)	(21,985)	...	(27,318)	...	(14,234)	...	(21,516)	...	(24,701)	...	(13,970)	...
Mean hours worked per week, 1989	40.48	...	48.14	...	35.12	...	41.31	...	44.19	...	37.93	...
Standard deviation	(18.28)	...	(16.79)	...	(17.34)	...	(10.66)	...	(9.92)	...	(10.52)	...
Mean weeks worked, 1989	45.39	...	48.04	...	43.53	...	47.85	...	48.91	...	46.59	...
Standard deviation	(12.03)	...	(9.47)	...	(13.23)	...	(9.36)	...	(8.00)	...	(10.62)	...

onsite workers evident in table 2 has to do with annual and hourly earnings. For both men and women, the annual and hourly earnings of home-based workers were well below those of onsite workers. To abstract from the differences in annual earnings that arise from differences in the distribution of work hours, we focus here on hourly earnings only. Hourly earnings of home-based men and women workers were 85 percent and 75 percent, respectively, of their onsite counterparts. However, much caution must be exercised in drawing conclusions from these differences: as we have seen, home-based and onsite workers differ with regard to characteristics that are well known to be related to earnings—class of worker, part-time versus full-time status, and location of residence (urban or rural). An added complication arises because of the difficulties that exist in measuring earnings for the self-employed.

To get a better understanding of earnings differences between home-based and onsite workers, table 5 presents a comparison of hourly earnings of these workers by class of worker, location of residence, and weekly hours worked. In every case but one (men working fewer than 35 hours per week), the hourly earnings of home-based workers were below those of onsite workers. Further, in all of the comparisons shown, the ratio of hourly earnings of home-based to onsite workers was lower for women than for men; apparently, women "pay more" for home-based work than do men, perhaps because women are more likely to desire work flexibility in virtue of their child care responsibilities. Other cases in which the ratio of home-based to onsite earnings was especially low were for workers in rural farm areas and for those who worked 45 or more hours per week—both cases in which the home-based workers were much more likely to be in farming occupations than were the onsite workers.[24]

Differences in the occupational and industrial distributions between home-based and onsite workers shown in table 3 are similar to those reported from the CPS survey, with service industries and occupations relatively more highly represented among the home-based workers and manufacturing industries and occupations less so. An important difference between the industrial and occupational distributions presented in tables 1 and 3, however, is that the CPS data in table 1 are for nonfarm employment only, whereas the data from the Census of Population in table 3 include both farm and nonfarm employment. This affects the industrial and occupational distributions of home-based workers because, as previously noted, home-based workers were much more likely to live in farm areas. In particular, 13.8 percent of home-based workers (25.5 percent of men and 5.6 percent of women) were employed in farming occupations, while only 0.9 percent of onsite workers (1.4 percent of men and 0.3 percent of women) were in farming occupations. Similarly, 15.0 percent of home-based workers were employed in the farming industry, while only 1.2 percent of onsite workers were.

Comparing the occupational and industrial distributions of home-based and onsite workers by sex, we see that the aggregate differences in table 1 mask distinct sex-related patterns. Consider first occupation. For men, the most pronounced difference between home-based and onsite workers is that relatively more home-based workers were in farming occupations and relatively fewer in manufacturing occupations. For women, relatively more home-based workers were in service occupations, and relatively fewer were in managerial,

Table 2. Continued—Socioeconomic characteristics of workers aged 25–55, by work site and sex, 1990

Characteristic	Home-based workers						Onsite workers					
	Total		Men		Women		Total		Men		Women	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Weekly hours worked, 1989:												
Fewer than 35 hours	716,701	37.2	321,680	38.9	395,039	36.0	7,827,276	11.7	1,540,276	4.3	6,287,000	20.5
35–45 hours	559,580	29.1	98,860	11.9	460,720	42.0	45,574,650	68.1	24,256,125	66.9	21,318,525	69.4
More than 45 hours	649,306	33.7	407,100	49.2	242,206	22.1	13,530,025	20.2	10,434,951	28.8	3,095,074	10.1
Mean hourly wage, 1989 (dollars per hour)[2]	$9.86	...	$12.66	...	$7.91	...	$12.88	...	$14.84	...	$10.57	...
Standard deviation (dollars per hour)	(15.09)	...	(16.85)	...	(13.38)	...	(11.13)	...	(12.31)	...	(9.03)	...

[1] Not available.

[2] Computed from annual earnings, weeks, and hours worked for 1989.

NOTE: The information in this table is computed from the 5-percent Public Use Microdata Sample (PUMS) of the 1990 Census of Population. Workers in group quarters, in institutions, in the military, or in school are excluded, as are those who reported that they were home based during the week the census was taken, but did not work in 1989. Also excluded are workers whose information on earnings for 1989 was not consistent with their reported class-of-worker status (self-employed or employee) in 1990 and workers whose computed hourly earnings exceeded $250. The data for home-based workers are from the full 5-percent sample; the data for onsite workers are based on a 0.04 subsample of the 5-percent sample (yielding a 0.002 sample of the onsite worker population).

Table 3. Occupational and industrial distributions of workers aged 25–55, by work site and sex, 1990

Occupation and industry	Home-based workers						Onsite workers					
	Total		Men		Women		Total		Men		Women	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Occupation												
All occupations	1,542,268	100.0	634,642	100.0	907,626	100.0	66,931,950	100.0	36,231,350	100.0	30,700,600	100.0
Managerial and professional specialty	403,528	26.2	189,034	29.8	214,494	23.6	19,047,598	28.5	9,481,574	26.2	9,566,024	31.2
Executive, administrative, and managerial	176,991	11.5	88,469	13.9	88,522	9.8	9,019,123	13.5	5,103,624	14.1	3,915,499	12.8
Professional specialty	226,537	14.7	100,565	15.8	125,972	13.9	10,028,474	15.0	4,377,949	12.1	5,650,525	18.4
Technical, sales, and administrative support	351,931	22.8	117,280	18.5	234,651	25.9	20,731,148	31.0	7,676,774	21.2	13,054,374	42.5
Sales occupations	190,354	12.3	102,453	16.2	87,901	9.7	9,587,184	14.3	5,289,100	14.6	4,298,084	14.0
Administrative support, including clerical	161,577	10.5	14,827	2.3	146,750	16.2	11,142,573	16.6	2,387,674	6.6	8,754,899	28.5
Service occupations	361,712	23.5	27,054	4.3	334,658	36.9	7,264,748	10.9	2,987,575	8.2	4,277,173	13.9
Personal service occupations	279,994	18.2	5,523	.8	274,471	30.2	902,223	1.3	163,874	.5	738,349	2.4
Precision production, craft, and repair	112,425	7.3	82,231	13.0	30,194	3.3	8,460,252	12.6	7,666,626	21.2	793,626	2.6
Operators, fabricators, and laborers	83,073	5.4	46,282	7.3	36,791	4.1	10,314,047	15.4	7,495,023	20.7	2,819,024	9.2
Farming occupations	212,644	13.8	162,191	25.5	50,453	5.6	611,765	.9	507,239	1.4	104,526	.3
Other occupations	16,955	1.1	10,570	1.7	6,385	.7	520,627	.8	434,776	1.2	85,851	.3
Industry												
All industries	1,542,268	100.0	634,642	100.0	907,626	100.0	66,931,950	100.0	36,231,350	100.0	30,700,600	100.0
Construction	47,810	3.1	19,674	3.1	28,136	3.1	4,295,802	6.4	3,909,051	10.8	386,751	1.3
Manufacturing	106,144	6.9	44,425	7.0	61,719	6.8	13,534,727	20.2	9,031,551	24.9	4,503,176	14.7
Transportation and public utilities	27,126	1.8	10,789	1.7	16,337	1.8	5,646,197	8.4	4,017,248	11.1	1,628,949	5.3
Wholesale trade	34,565	2.2	14,597	2.3	19,968	2.2	3,180,449	4.8	2,245,198	6.2	935,251	3.0
Retail trade	144,339	9.4	59,022	9.3	85,317	9.4	8,813,998	13.2	4,273,248	11.8	4,540,750	14.8
Finance, insurance, and real estate	72,848	4.7	31,097	4.9	41,751	4.6	4,800,925	7.2	1,806,125	5.0	2,994,800	9.8
Services	957,741	62.1	400,459	63.1	557,282	61.4	21,194,675	31.7	7,458,625	20.6	13,736,050	44.7
Business and repair services	141,002	9.1	71,621	11.3	69,381	7.6	3,062,924	4.6	1,920,475	5.3	1,142,449	3.7
Personal services	121,052	7.8	21,317	3.4	99,735	11.0	1,800,949	2.7	563,350	1.6	1,237,599	4.0
Professional services	493,997	32.0	99,200	15.6	394,797	43.5	15,600,348	23.3	4,578,425	12.6	11,021,923	35.9
Social services	7,301	.5	1,474	.2	5,827	.6	454,549	7	104,274	.3	350,275	1.1
Farming industry	231,707	15.0	169,879	26.8	61,828	6.8	810,909	1.2	615,933	1.7	194,976	6
Other industries	30,770	2.0	15,278	2.4	15,492	1.7	4,642,178	6.9	2,862,277	7.9	1,779,901	5.8

NOTE: The information in this table is computed from the 5-percent Public Use Microdata Sample (PUMS) of the 1990 Census of Population. Workers in group quarters, in institutions, in the military, or in school are excluded, as are those who reported that they were home based during the week the census was taken, but did not work in 1989. Also excluded are workers whose information on earnings for 1989 was not consistent with their reported class-of-worker status (self-employed or employee) in 1990 and workers whose computed hourly earnings exceeded $250. The data for home-based workers are from the full 5-percent sample; the data for onsite workers are based on a 0.04 subsample of the 5-percent sample (yielding a 0.002 sample of the onsite worker population).

sales, and clerical occupations. With regard to industry, home-based men were more likely than onsite men to be in farming and service industries and less likely to be in manufacturing and transportation. Home-based women were more likely to be in service industries and farming (61.7 percent were in services alone) and less likely to be in manufacturing and most other industries. Thus, overall, home-based workers were much more likely than onsite workers to be employed in farm and service industries and occupations, and less likely to be in manufacturing and sales industries and occupations.

IN SETTING OUT THE CONTROVERSY that surrounds home-based work, we have presented the two alternative views of this form of work organization. One portrays home-based workers as an advantaged group with broad workplace flexibility; the other characterizes them as disadvantaged and exploited. The reality of home-based work is not so simple as either of these views would have it. The complex data we have presented in this article demonstrate that home-based workers are diverse in a wide variety of dimensions and that they can be accurately rendered only with a more nuanced picture.

Nonetheless, some broad patterns do emerge. First, and perhaps most important, 63.0 percent of home-based workers are self-employed. (By contrast, for onsite workers, the proportion is 5.5 percent.) Thus, for a large group of home-based workers, the issue of exploitation loses much of its potency. This finding also provides insight into one aspect of home-based work that may limit its expansion: the difficulty of

monitoring workers when they are not at a work site. It may be that one of the important ways that workers are able to arrange a home-based option for themselves, given this potential monitoring problem, is by becoming their own employer. Second, home-based workers are much less likely than are onsite workers to work standard hours (35 to 45 hours per week). Third, home-based workers are more likely to live in rural areas, both farm and nonfarm, than are all workers.[25] Fourth, home-based workers—especially women—are disproportionately represented in service industries and occupations, and male home-based workers are disproportionately represented in farming. Fifth, female home-based workers are more likely than are all female workers to have children under the age of 18 years. And finally, nonwhites and non-Hispanics are a smaller proportion of home-based workers than they are of the labor force at large, whereas for women, the converse is true.

If one focuses on the three characteristics that most clearly distinguish home-based workers from onsite workers—that home-based workers are much more likely to be self-employed, to work nonstandard hours, and to live in rural areas—one readily sees that they all point toward one unifying feature: home-based workers are workers who value labor force flexibility in all of its dimensions—with respect to the work site, work hours, the type of employer, and the type of locale. It is not surprising, then, that workers most in need of this type of flexibility—women in general and especially those with young children at home, the disabled, and those living in rural areas (where commuting times to onsite work are likely to be longer than in urban areas)—have a greater representation among home-based workers than among onsite workers. Turning this argument around, one could say that the high rate of self-employment among home-based workers may well be a reflection of the desire for flexibility: people may choose self-employment as a way of getting the workplace flexibility they need and desire, and one important dimension of that flexibility is the ability to make one's home one's workplace.

Table 4. Weekly hours worked by home-based and onsite workers, by class of worker and sex, 1989

[In percent]

Weekly hours worked	Men		Women	
	Home-based workers	Onsite workers	Home-based workers	Onsite workers
Self-employed workers				
All hours	100.0	100.0	100.0	100.0
Fewer than 35 hours	13.1	9.9	40.5	36.4
35 to 45 hours	35.4	42.2	34.1	37.3
More than 45 hours	51.5	47.9	25.4	26.3
Wage and salary workers				
All hours	100.0	100.0	100.0	100.0
Fewer than 35 hours	8.7	3.8	43.8	19.9
35 to 45 hours	52.4	68.9	40.4	70.6
More than 45 hours	38.9	27.3	15.8	9.5

NOTE: The information in this table is computed from the 5-percent Public Use Microdata Sample (PUMS) of the 1990 Census of Population. Workers in group quarters, in institutions, in the military, or in school are excluded, as are those who reported that they were home based during the week the census was taken, but did not work in 1989. Also excluded are workers whose information on earnings for 1989 was not consistent with their reported class-of-worker status (self-employed or employee) in 1990 and workers whose computed hourly earnings exceeded $250. The data for home-based workers are from the full 5-percent sample; the data for onsite workers are based on a 0.04 subsample of the 5-percent sample (yielding a 0.002 sample of the onsite worker population).

Table 5. Average hourly earnings of home-based and onsite workers, by class of worker, location of household, and weekly hours worked, 1989[1]

[In dollars]

Characteristic	Men			Women		
	Home-based workers	Onsite workers	Ratio	Home-based workers	Onsite workers	Ratio
Class of worker:						
Self-employed	12.15	15.46	0.786	7.29	11.02	0.662
Wage and salary	13.53	14.79	.915	8.97	10.55	.850
Location of household:						
Urban	15.25	15.36	.993	8.59	10.98	.782
Rural, farm	8.56	11.77	.727	5.25	8.92	.589
Rural, nonfarm	10.78	13.28	.812	6.75	9.23	.731
Weekly hours worked:						
Fewer than 35	20.38	17.57	1.160	9.96	10.60	.940
35 to 45	13.80	14.69	.939	7.27	10.58	.687
More than 45	9.76	14.77	.661	5.05	10.40	.486

[1] Computed from annual earnings, weeks, and hours worked for 1989.

NOTE: See table 4.

But this flexibility appears to come at a cost: the average hourly wages of home-based workers of either sex are below those of onsite workers, even when one controls for class of worker, hours worked, or location of residence (urban or rural). Only in the cases of male urban workers and men who work fewer than 35 hours per week do the hourly earnings of home-based workers exceed those of their onsite counterparts. Future analyses must explore whether these differences persist when one controls for other important factors that affect wages.

The findings also raise a number of other issues that must be addressed in future work. The degree of overlap between home-based work and self-employment means that a joint analysis of both the work site decision and the self-employment decision is essential. A similar observation can be made

regarding the choice of work site and work hours. More generally, what is needed is a multidimensional analysis of the labor force participation of men and women, treating simultaneously decisions regarding self-employment, the work site, and hours. Only with such an analysis can we begin to understand how these various dimensions of workplace flexibility are related to each other and to other demographic and socioeconomic characteristics of workers. Further, in the context of this type of model, it may be possible to determine whether the reduced hourly earnings of home-based workers are a manifestation of their exploitation or a rational payment for their enhanced labor force flexibility. □

Footnotes

ACKNOWLEDGMENTS: Funding for this research was provided by the National Science Foundation, Grant No. SBR–9320820. We thank Andrew Beveridge, Susan Weber, and Vadim Shlez for their assistance in preparing and analyzing the PUMS data, and Charlotte Muller for helpful comments.

[1] Link Resources Corporation, news release, "1993 Home Office Trend Fact Sheet." The data come from proprietary surveys taken by the company and are made available to the public only in the form of news releases. According to these releases, Link Resources' National Work-at-Home Survey is based on telephone surveys of 2,500 randomly selected U.S. households. The company defines a homeworker as a person aged 18 or older who performs "income-producing or job-related work at home part- or full-time—and/or uses one or more of the following for work at home: PC, modem, fax, multiple phone lines." Link Resources' estimate of the proportion of homeworkers, thus defined, for 1991 was 31.2 percent, which is substantially higher than the proportion for 1991 reported in the Current Population Survey (CPS) special survey taken that year and published in 1994.

[2] William G. Deming, "Work at home: data from the CPS," *Monthly Labor Review*, February 1994, pp. 14–20.

[3] *Ibid.*

[4] The data for 1960 and 1980 come from Hillary Silver, "The Demand for Homework: Evidence from the U.S. Census," in Eileen Boris and Cynthia R. Daniels (eds.), *Homework: Historical and Contemporary Perspectives on Paid Labor at Home* (Urbana, IL, University of Illinois Press, 1989). The data for 1990 are from *1990 Census of Population: Social and Economic Characteristics: United States* (U.S. Department of Commerce, Bureau of the Census, 1993), table 18, p. 18.

[5] "Working at Home to Clear the Air," *The Wall Street Journal*, Oct. 19, 1992, p. B1.

[6] The seven banned industries were women's apparel, jewelry manufacturing, knitted outerwear, gloves and mittens, button and buckle manufacturing, handkerchief manufacturing, and embroideries. The only exceptions were for workers who were disabled or too old to get to a place of business and workers who had to care for the disabled. In these exceptional cases, special certificates had to be obtained from the Department of Labor under Regulation 29 CFR, Part 530.

[7] *Federal Register*, vol. 53, no. 213 (Nov. 10, 1988), pp. 45706–45727 (reprint, incorporating subsequent corrections printed in *Federal Register*, Nov. 17, 1988).

[8] The ban on homework in one industry, knitted outerwear, had already been lifted effective Dec. 5, 1984. The revised Regulation 29 CFR, Parts 516 and 530, appears in the *Federal Register* (Nov. 10, 1988). Also included in that issue is a detailed review of all of the proposed rule changes, beginning with that of May 11, 1981, and a précis of all of the comments received at the various hearings conducted up until the promulgation of the 1989 rule.

[9] "Spread of Illegal Home Sewing is Fueled by Immigrants," *The Wall Street Journal*, Mar. 15, 1994, p. B1.

[10] See the letter submitted for the record by Jackie Ruft, executive director of District 925 of the Service Employees International Union, in U.S. House of Representatives, Subcommittee of the Committee on Government Operations, Hearing, "Pros and Cons of Home-Based Clerical Work," Feb. 26, 1986.

[11] "Union Resistance Could Slow the Growth of 'Telecommuting,'" *The Wall Street Journal*, Sept. 22, 1992, p. A1.

[12] Judith Gerson and Robert E. Kraut, "Clerical Work at Home or in the Office: The Difference it Makes," in Kathleen Christensen, ed., *The New Era of Home-Based Work* (Boulder, CO, Westview Press, 1988).

[13] *Ibid.*, p. 50.

[14] The results of this survey are in Deming, "Work at home."

[15] There was also a special supplement to the CPS in May 1985 on the issue of work at home, but the relevant questions were worded differently from those in the 1991 survey, so the data are not comparable. (See Deming, "Work at home.")

[16] Personal service industries include private households, hotels and motels, other lodging places, laundry and cleaning establishments, beauty shops, barber shops, funeral services, shoe repair shops, dressmaking shops, and miscellaneous services. (See *Census of Population and Housing, 1990: Public Use Microdata Sample Technical Documentation* (U. S. Department of Commerce, Bureau of the Census, 1992).)

[17] The category of "managerial and professional specialty" occupations includes as a major subcategory "professional specialty" occupations, which include occupations such as engineer, architect, surveyor, mathematical and computer scientist, health diagnosing professional, assessing and treating professional, social worker, writer, and lawyer.

[18] These questions could also be investigated with the CPS data used by Deming.

[19] *Census of Population and Housing, 1990.*

[20] Persons who used more than one mode of transportation were requested to identify the one used for most of the distance traveled to work. The question pertains to the location at which the person worked most in the previous week. It is not possible to determine whether persons worked at more than one job.

[21] Because home-based workers constitute between 2 percent and 3 percent of total employment, this differential sampling rate yields samples of home-based and onsite workers of the same order of magnitude. Note that in computing the means reported in the tables, we use the weights provided by the Census Bureau.

[22] Interestingly, the proportion of workers with someone aged 65 or older in the household was only slightly larger for home-based workers than for onsite workers (5.5 percent versus 5.2 percent), suggesting that if having an elderly person in the household creates a need for home-based work, this effect is offset by the possibility that the elderly may facilitate onsite work by acting as baby-sitters.

[23] Information about the number of children ever born is obtained from question 20 in the Census of Population. This question is asked only of women. (See *Census of Population and Housing, 1990.*)

[24] For workers in rural farm areas, 88.9 percent of the home-based men and 61.4 percent of the home-based women were in farm occupations, whereas the corresponding percentages for onsite workers were 33.0 percent and 6.6 percent, respectively. For those who worked 45 or more hours per week, 37.1 percent of the home-based men and 8.4 percent of the home-based women were in farming occupations, compared with 2.3 percent of the home-based men and 0.7 percent of the home-based women for onsite workers.

[25] While some of these home-based rural workers are farmers, farming does not by any means account for all rural home-based workers: slightly more than 48 percent of all male home-based workers live in rural areas, but only 25.5 percent of male home-based workers report farmer as their occupation. For female home-based workers, 32.0 percent live in rural areas, but only 5.6 percent are in farming occupations.

Prevalence of drug testing in the workplace

Drug testing continues to develop as a popular strategy to control substance abuse in the workplace; the incidence of testing is partially based on the type of worksite, characteristics of employees, and policies of the company

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Substance abuse has compelled many U.S. firms to create strategies that would help keep it out of the workplace. Some firms have sponsored elaborate and extensive programs to control alcohol and drug misuse.[1] However, these programs have tended to rely on a supervisor's, a coworker's, or an employee's judgment about the presence of substance abuse in another individual or themselves. In the 1980s, some firms began to adopt drug and alcohol testing as an objective strategy to detect and control substance abuse. Advocates of this approach assert that an employee's positive test results can be linked to impairments in job performance, safety risks, and absenteeism.[2]

While drug testing programs span many segments of society (including suspected criminal offenders and automobile operators), this article focuses on the prevalence and characteristics of drug testing programs in private-sector workplaces within the United States. First, we describe the proliferation of drug tests as evidenced in earlier studies. We then present our findings from a national telephone survey conducted in 1993, which estimated the prevalence and characteristics of testing programs, and descriptors of worksites most likely to implement them. We discuss the implementation of various types of programs (that is, preemployment, random, regular), the types of worksites that conduct such tests, and the employees who are eligible to be tested in those worksites. Research findings are discussed within the context of social policy and the findings of earlier research studies. Lastly, we offer some comments regarding the future of testing and its integration with other workplace substance abuse control strategies.

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Drug testing trends

Surveys of worksite respondents indicate a growing trend in the implementation of drug testing programs from the mid-1980s to the present. For example, one study finds that 18 percent of Fortune 500 companies tested their employees in 1985, but by 1991, the proportion had more than doubled to 40 percent.[3] A survey conducted by the American Management Association in 1988 indicated increases in the testing of both applicants and current employees for drugs. Thirty-eight percent of all the organizations in the survey tested job applicants, compared with 28 percent of those in 1987; 36 percent tested current employees, compared with 28 percent in 1986.[4] By 1991, 48 percent of Fortune 1000 firms engaged in some type of drug testing.[5] Another study found that up to 63 percent of surveyed employers performed some type of testing in 1992.[6] And, in a survey of 342 large firms (that is, firms that have more than 200 workers) in the State of Georgia, Terry Blum, and others report that 77 percent of the companies engaged in some type of drug testing between 1991 and 1992.[7] In addition to these relatively small surveys, representative national surveys conducted by the Bureau of Labor Statistics indicate that 31.9 percent of worksites with more than 250 employees had drug testing programs in 1988, and by 1990, that proportion had increased to 45.9 percent .[8] Even

with the methodological differences among these studies, it seems reasonable to conclude that the drug testing of job applicants and current employees has become much more common in recent years.

Worksites linked to testing

Previous research indicates that drug testing programs are implemented differently, according to company size and industry type. For example, a study conducted by the American Management Association in 1987 reported that while 43 percent of large corporate respondents (sales over $500 million) indicated that they test job applicants, only 16 percent of smaller corporate respondents (less than $50 million in sales) reported any type of drug testing.[9] In the BLS Survey of Employer Anti-Drug Programs, conducted in the summer of 1988, 43 percent of the largest worksites (with 1,000 employees or more) had drug testing programs, compared with 2 percent of the smallest worksites (fewer than 50 employees).[10] Furthermore, the BLS follow-up survey, conducted in 1990, showed an increase in the percentage of larger companies, but no significant increase in the percentage of small firms with drug testing programs.[11]

Firms implementing drug testing programs also can be distinguished by type of industry. The 1989 Conference Board survey showed that three-fourths of the companies with drug testing programs were manufacturers or gas and electric utilities, while nearly half of the companies that reported not having a drug testing program were in banking, insurance, and other financial service industries.[12] The 1988 BLS survey also showed that worksites in mining, communications, public utilities, and transportation were most likely to have testing programs, reaffirming the findings reported by the Conference Board.[13] Worksites least likely to have testing programs were those in the retail trade and services industries. Worksites in the latter industries tended to be small, however, confounding the relationship between the existence of testing programs and specific industry type.

Differences in programs

Three primary distinctions among drug testing programs relate to the persons or groups subject to testing, the scheduling of tests, and the substances for which they are tested. The groups that are subject to testing are usually job applicants or current employees. Testing of new applicants appears to be a more common policy than any form of testing of current employees. For example, the Conference Board survey reports that almost half of all organizations screened job applicants by using a drug test.[14] In addition, the study by Blum, and her colleagues found that job applicants were not often subjected to drug testing among the large firms in Georgia.[15] The firms that did test current employees, but not applicants were rare, and were probably located in communities with limited labor markets.

The scheduling of tests among current employees is usually classified as random, comprehensive, or for reasonable cause (including followup testing). Random testing is completed with all or a specific segment of employees at a particular worksite, on an unannounced, variable schedule. Random testing seems to be the approach most commonly implemented by firms affected by Department of Transportation regulations .[16] The proportion of larger firms engaged in random testing of employees has increased rapidly. In fact, one study found an increase from 2 percent in 1987 to 30 percent in 1991.[17] Blum and colleagues found that 18 percent of the firms in the American Management survey conducted random tests in 1988.[18]

On a regular basis, companies are likely to conduct testing as a part of a routinely scheduled annual physical examination. Alternatively, they may otherwise announce testing dates, or periods in which tests will be conducted, to employees. This pattern of testing is likely to be conducted with all workers, and unlike random testing, does not seem to have a detrimental effect on employee morale (the administrators are tested along with subordinates). Regular testing is usually more acceptable to workers and organized labor, and it can enhance the firm's image in the community. It is less effective than random testing in detecting substance misuse, however, because employees are usually notified when the test will be scheduled .[19]

Among companies that test current employees, testing for reasonable cause has been the most common practice, and is based on suspicion of substance misuse (resulting from unsafe or nonproductive practices, observation of erratic behavior, possession, or other indications of intoxication or policy violation).[20] If detected, substance abusers are given the opportunity to seek treatment by the firm and retain their jobs. They could be subjected to return-to-work and followup testing as a condition of employment, for a period of time.

Employers have the option of selecting substances for which employees are tested, threshold levels of various chemicals in the body that would constitute a positive drug test, and the option of retesting in the case of a positive result. Of particular interest is the inclusion of alcohol testing in a comprehensive drug testing program.[21] While practically all companies that conduct alcohol tests also test for drugs, only a small proportion of all drug testing programs screen for alcohol misuse.[22]

Other corporate responses. According to the 1989 Conference Board survey, drug testing programs were typically part of an integrated substance abuse strategy, which included a written substance abuse policy, an employee assistance pro-

gram, and a drug education and awareness program.[23] Coordinated efforts to deal with alcohol and drug misuse in the workplace were far less common in corporations without drug testing programs. Similarly, one study found that 60 percent of companies with a drug testing program also had a comprehensive treatment and education program.[24] Another study reported that more than one-half of companies with drug testing programs also had Employee Assistance Programs.[25] Other research has indicated that organizations with drug testing programs are significantly more likely to also have Employee Assistance Programs than those without drug testing programs. [26]

Results

Table 1 presents national estimates of drug and alcohol testing for worksites and employees by worksite size, type of industry, and region. (See appendix for a description of the methodology used in this study.) Approximately 48 percent of all private worksites in the United States with 50 or more full-time employees conduct drug tests, and approximately 23 percent test employees for alcohol misuse. The prevalence of worksite drug testing increased approximately 32 percent (that is, from 16 percent to 48 percent) from the 1988 BLS survey to the period of our survey, 1992–93.[27]

Worksite size. Table 1 also shows a positive relationship between worksite size and the prevalence of a drug or an alcohol testing program. Approximately 71 percent of worksites with more than 1,000 employees conduct drug tests and 42 percent test for alcohol misuse. In contrast, 40.2 percent of worksites with 50 to 99 employees conduct drug tests and 16.5 percent test for alcohol misuse.

Because of the relatively greater prevalence of drug and alcohol testing programs in larger worksites, most employees in the United States are in worksites with these programs. As

Table 1. National estimates of the prevalence of drug and alcohol testing among worksites and employees, by selected characteristics of the worksite, 1992–93

[In percent]

Characteristic	Worksites[1]			Employees		
	Total (in thousands)	Test for drug use	Test for alcohol use	Total (in thousands)	In worksites that test for drug use	In worksites that test for acohol use
All worksites	162.8 (–)	48.4 (1.2)	23.0 (1.0)	41,127 (1,271)	62.3 (1.6)	32.7(2.1)
Worksites size						
50–99 employees	61.6 (1.7)	40.2 (2.1)	16.5 (1.6)	4,319 (124)	40.7 (2.2)	16.7 (1.6)
100–249 employees	66.0 (1.8)	48.2 (1.9)	22.9 (1.7)	9,612 (265)	48.9 (1.9)	23.2 (1.7)
250–999 employees	29.0 (.9)	61.4 (2.1)	32.7 (2.1)	12,520 (404)	62.8 (2.1)	33.5 (2.2)
1,000 employees or more	6.2 (.3)	70.9 (3.4)	42.1 (3.5)	14,675 (1,282)	77.1 (3.4)	43.0 (5.0)
Type of industry						
Manufacturing	54.0 (1.0)	60.2 (2.2)	28.3 (2.0)	14,058 (554)	73.5 (2.2)	37.5 (2.8)
Wholesale and retail	32.2 (1.1)	53.7 (3.3)	22.1 (2.7)	4,901 (236)	57.3 (3.0)	27.7 (3.2)
Communications, utilities, and transportation	13.5 (.8)	72.4 (3.3)	34.9 (3.0)	4,202 (435)	85.8 (2.6)	43.9 (5.3)
Finance, insurance, and real estate,	14.2 (0.5)	22.6 (2.1)	7.8 (1.3)	4,369 (563)	50.2 (6.7)	12.2 (3.1)
Mining and construction	5.6 (.4)	69.6 (4.1)	28.6 (3.5)	801 (49)	77.7 (3.2)	32.2 (3.1)
Services	43.3 (1.2)	27.9 (2.0)	17.4 (1.7)	12,796 (998)	47.5 (4.5)	32.7 (5.2)
Region						
Northeast	33.0 (1.5)	33.3 (2.4)	12.9 (1.7)	9,356 (617)	49.1 (3.6)	19.3 (2.6)
Midwest	40.7 (1.8)	50.3 (2.5)	24.0 (2.1)	10,190 (616)	62.4 (3.1)	34.4 (3.2)
South	59.1 (1.9)	56.3 (2.0)	26.3 (1.8)	14,986 (1,168)	71.8 (2.6)	36.9 (4.4)
West	30.0 (1.6)	46.8 (2.9)	26.0 (2.5)	6,594 (460)	59.4 (3.3)	39.7 (3.9)

[1] Worksites of private nonagricultural firms with more than 50 full-time employees at the time of survey.

NOTE: Standard errors appear in parentheses.

shown in table 1, about 62 percent of all employees in private-sector worksites (with 50 or more workers) are employed by firms which conduct drug tests and approximately 33 percent are employed by firms which test for alcohol misuse. Compared with the BLS survey, this coverage rate is greater in all worksite size categories.[28]

Type of industry. The prevalence of drug and alcohol testing varies across industry groups. As table 1 shows, the manufacturing (60.2 percent); wholesale and retail trade (53.7 percent); communications, utilities, and transportation (72.4 percent); and mining and construction (69.6 percent) industries have the highest prevalence of drug testing, compared with the finance, real estate, and insurance (22.6 percent) and services (27.9 percent) industries, which have the lowest. A similar pattern is demonstrated for alcohol testing programs with the communications, utilities, and transportation (34.9 percent) industries having the highest prevalence rates and the finance, real estate, and insurance industries (7.8 percent) having the lowest rates. Approximately, the same ranking orders apply when percentage of worksite data are compared with percentage of employees (table 1).

Regional areas. The highest prevalence for drug and alcohol testing in worksites, by regional area (as defined by the Bureau of the Census) is in the South (56.3 percent for drugs and 26.3 percent for alcohol), while the lowest is in the Northeast (33.3 percent for drugs and 12.9 percent for alcohol). The Midwestern and Western regions have similar prevalence rates (approximately 48 percent for drugs and 25 percent for alcohol). (The remainder of this article pertains to drug testing programs only.)

Worksites and employees

Table 2 examines the relationship between the prevalence of drug testing and various employee and worksite characteristics.[29] For example, of all employees in worksites with 50 or more full-time employees, 12.7 percent are represented by a union. However, worksites with a larger percentage of union employees are more likely to have a drug testing program than not to have one (16.3 percent, versus 9.2 percent). A similar relationship exists with the percentage of full-time employees. Worksites with a larger percentage of full-time employees are more likely to have drug testing. A reverse relationship exists with the percentage of employees who have a college degree and are under age 30. Worksites with larger percentages of these employees are less likely to have drug testing programs. Neither the percentage of minority employees at a worksite nor those with a high school diploma is related to having a drug testing program.

The worksite characteristics presented in table 2 indicate the following: when a worksite conducts drug testing, it is more likely to have a written alcohol and drug use policy (96.0 percent) and it is more likely to have an Employee Assistance Program (45.9 percent).

Table 2. Employee and worksite characteristics by drug testing status, 1992–93

Characteristic	Worksite has drug testing			
	All worksites[1]	Yes	No	Statistically significant[2]
Employee				
Full-time	90.2	92.4	88.1	Yes
Under 30 years of age	36.1	34.3	37.7	Yes
High school diploma	85.7	85.1	86.3	No
College degree	27.4	23.4	31.0	Yes
Union representation	12.7	16.3	9.2	Yes
Minority employees[3]	28.4	28.4	28.4	No
Worksite				
Written alcohol and drug use policy	87.1	96.0	78.5	Yes
Population less than 50,000 persons[4]	38.9	41.4	36.6	No (p=.06)
Employee Assistance Program	32.9	45.9	20.6	Yes

[1] Worksites of private nonagricultural firms with more than 50 full-time employees at the time of the survey.
[2] Significant difference in mean percentages for worksites with and without drug testing at the .05 percent level.
[3] Includes black, Hispanic origin, Asian, and Native American.
[4] Worksite is in a community with a population of less than 50,000.

NOTE: Percentages for employee characteristics are means of percentages of employees at worksites with that characteristic; the statistical test was the t-test. Percentages under worksite characteristics are percentages of worksites with that characteristic; the statistical test was the chi-square test.

Who gets tested? In addition to the overall prevalence of drug testing programs in worksites, we also examined which employees were subject to testing. As table 3 shows, 48.4 percent of worksites with more than 50 full-time employees have some type of drug testing program. Of this group, 23.6 percent subject all employees to testing, 14.0 percent test *only* applicants, and 3.6 percent test *only* employees regulated by the Department of Transportation. Not shown in table 3, but interesting to note, is that 0.8 percent of the worksites test only safety or security employees and 6.4 percent test other combinations of groups (for example, job applicants and employees regulated by the Department of Transportation only).

Thus, most programs are designed to test all employees or

applicants only. In general, the percentage of worksites that test all employees and applicants only increases by worksite size. The mining and construction industries have the largest percentage of worksites where all employees are subject to testing (49.0 percent), and the manufacturing industry has the largest percentage that test new employees only (21.4 percent). As expected, the communications, utility, and transportation industries have the largest percentage of worksites that test only employees who are regulated by the Department of Transportation (13.4 percent). Of the four regions, the South has the largest percentage of worksites that test all employees (32.7 percent).

Frequency. Table 4 presents the percentage of drug testing worksites that test on a regular or random basis. Generally, less than 15 percent of these worksites actually conduct such tests on a regular basis. In contrast, approximately 47 percent of these worksites test on a random basis. The percentage of random testing decreases with worksite size and is the highest in the communication, utilities, and transportation industries (76.1 percent). Regular testing does not appear to be related to worksite size and is highest in the mining and construction industries (20.7 percent). The South has the highest percentage of random testing (53.8 percent), while regular testing is highest in the Midwest (16.2 percent). The West has the lowest percentages for both random (32.7 percent) and regular testing (11.0 percent).

Who conducts the tests? Table 5 examines which organization or department is responsible for conducting drug tests at a worksite. Overall, outside contractors are responsible for testing at approximately 79 percent of worksites, while a medical department within a company conducts tests for approximately 11 percent and a personnel or human resources department tests for 6.4 percent. As worksite employment size increases, outside contractors are used less frequently (for example, 86.9 percent for worksites with 50–99 employees, versus 46.3 percent for worksites with 1,000 or more employees), while the use of a medical department increases dramatically (for example, 5.0 percent for worksites with 50–99 employees, versus 40.4 percent for worksites with 1,000 or more employees). Thus, compared with smaller worksites, the larger worksites are more likely to conduct tests internally. The wholesale/retail trade industry reported the largest percentage of tests done by an outside contractor (91.2 percent), while the services industry reported the lowest percentage (69.0 percent). The Northeast had the largest percentage of drug tests done by a medical department (16.8 percent), while there was no noticeable pattern across regions for the percentage of testing by an outside contractor.

Table 3. Percentage of worksites where employee groups are subject to testing, by selected characteristics of the worksite, 1992–93

Characteristic	Worksites that conduct drug tests	Worksites where all employees are tested[1]	Only applicants are tested	Only transportation-regulated employees are tested[2]
All worksites[3]	48.4 (1.2)	23.6 (1.0)	14.0 (0.8)	3.6 (0.5)
Worksite size				
50–99 employees	40.2 (2.1)	19.9 (1.8)	10.4 (1.3)	5.3 (1.0)
100–249 employees	48.2 (1.9)	24.6 (1.7)	14.5 (1.4)	2.4 (.6)
250–999 employees	61.4 (2.1)	28.3 (2.0)	19.2 (1.8)	2.8 (.7)
1,000 employees or more	70.9 (3.4)	27.2 (3.0)	19.1 (2.5)	3.2 (1.0)
Type of industry				
Manufacturing	60.2 (2.2)	28.3 (2.0)	21.4 (1.8)	2.5 (.7)
Wholesale and retail	53.7 (3.3)	26.6 (3.0)	14.7 (2.2)	5.7 (1.7)
Communications, utilities, and transportation	72.4 (3.3)	27.4 (2.6)	13.0 (2.1)	13.4 (2.2)
Finance, insurance, and real estate	22.6 (2.1)	7.0 (1.2)	12.3 (1.6)	(4)
Mining and construction	69.6 (4.1)	49.0 (4.2)	6.9 (1.7)	4.0 (1.5)
Services	27.9 (2.0)	16.5 (1.7)	6.0 (1.0)	1.2 (.4)
Region				
Northeast	33.3 (2.4)	11.4 (1.7)	12.4 (1.7)	3.5 (1.0)
Midwest	50.3 (2.5)	20.0 (1.9)	16.1 (1.8)	4.8 (1.1)
South	56.3 (2.0)	32.7 (1.9)	13.4 (1.3)	3.6 (.8)
West	46.8 (2.9)	23.8 (2.4)	14.1 (2.0)	2.0 (.8)

[1] Many of these worksites also test applicants.
[2] Employees are regulated U.S. Department of Transportation.
[3] Worksites of private nonagricultural firms with more than 50 full-time employees at the time of survey.
[4] Insufficient sample size.
NOTE: Standard errors appear in parentheses.

Table 4. Frequency of drug testing for worksites that test current employees, by characteristics of the worksite, 1992–93

Characteristic	Percent that test[1]—	
	On regular basis	On random basis
All worksites with drug testing program[2]	13.7 (1.4)	46.7 (2.0)
Worksite size		
50–99 employees	15.3 (2.6)	54.3 (4.1)
100–249 employees	12.8 (2.3)	46.4 (3.3)
250–999 employees	12.5 (2.3)	38.2 (3.3)
1,000 employees or more	14.6 (3.6)	38.0 (4.6)
Type of industry		
Manufacturing	11.6 (2.2)	35.9 (3.3)
Wholesale and retail	12.8 (3.5)	51.3 (5.4)
Communications, utilities, and transportation	15.9 (2.5)	76.1 (3.5)
Finance, insurance, and real estate	5.8 (4.2)	32.4 (7.2)
Mining and construction	20.7 (4.5)	55.1 (5.2)
Services	16.2 (3.6)	38.8 (4.5)
Region		
Northeast	14.7 (3.5)	45.4 (5.5)
Midwest	16.2 (2.8)	44.4 (4.0)
South	13.0 (2.1)	53.8 (3.1)
West	11.0 (3.1)	32.7 (4.4)

[1] Worksites that test only job applicants are not included in this table.
[2] Worksites of private nonagricultural firms with more than 50 full-time employees at the time of survey.

NOTE: Standard errors appear in parentheses.

Table 5. Department responsible for conducting drug tests, by worksite characteristics, 1992–93

[In percent]

Characteristic	Medical department	Personnel or human resources	Outside contractor	Other[1]
All worksites[2]	10.6 (0.9)	6.4 (0.7)	78.9 (1.2)	3.7 (0.6)
Worksite size				
50–99 employees	5.0 (1.5)	3.0 (1.2)	86.9 (2.3)	4.7 (1.3)
100–249 employees	5.8 (1.2)	6.0 (1.2)	84.3 (1.9)	3.4 (1.0)
250–999 employees	19.7 (2.3)	10.8 (1.7)	66.6 (2.7)	2.6 (0.9)
1,000 employees or more	40.4 (3.8)	9.3 (2.1)	46.3 (4.0)	3.7 (1.8)
Type of industry				
Manufacturing	13.7 (1.6)	7.1 (1.4)	76.8 (2.1)	2.3 (0.8)
Wholesale and retail	3.6 (1.7)	3.0 (1.0)	91.2 (2.4)	2.1 (1.4)
Communications, utilities, and transportation	9.6 (1.7)	8.2 (1.6)	74.2 (2.7)	7.7 (1.6)
Finance, insurance, and real estate	7.5 (2.3)	5.0 (2.1)	85.0 (3.3)	[3]
Mining and construction	3.8 (1.5)	6.1 (1.8)	81.4 (3.1)	6.3 (1.8)
Services	15.9 (2.5)	7.8 (2.3)	69.0 (3.7)	6.2 (2.2)
Region				
Northeast	16.8 (3.2)	3.2 (1.1)	77.9 (3.5)	1.6 (.9)
Midwest	8.4 (1.5)	6.9(1.5)	80.7 (2.3)	3.8 (1.0)
South	11.1 (1.4)	6.8 (1.1)	77.1 (2.0)	4.2 (1.1)
West	8.1 (1.8)	6.8 (2.1)	81.2 (3.0)	3.7 (1.4)

[1] Includes Employee Assistance Program, Safety Department, and Department Supervisor.
[2] Worksites of private nonagricultural firms with more than 50 full-time employees at the time of survey.
[3] Insufficient sample size.

NOTE: Standard errors appear in parentheses.

Conclusion

Drug testing is widely implemented in worksites throughout the United States, and is partially based on the characteristics of the worksite, the characteristics of its employees, and the implementation of other strategies and policies to control substance misuse. Drug testing programs are continually added to worksite policies, as well as the proportion of the labor force subject to testing. Programs that test for illicit drug use are more than twice as prevalent as those that test for alcohol use. This is ironic, in that alcohol misuse is by far the more common personal problem related to impaired job performance.[30] However, testing for alcohol use is a more complex social and legal issue because *alcohol use* per se does not constitute a violation of law or company personnel policies.[31]

However, the results of this study confirm that drug testing continues to develop as a preferred strategy to control substance abuse in the workplace. Programs are most prevalent in larger worksites, those industries affected by drug testing legislation, and those employing high risk or unionized labor forces. Random drug testing has emerged as the most common form of testing, and most often, all employees and applicants are now included in testing programs. Drug testing is commonly conducted by external firms, but larger worksites are significantly more likely than their smaller counterparts to conduct testing within their worksites. Proliferation of the number and scope of programs, coupled with the movement towards random testing suggests continued strengthening of the employers' dedication to systematically identify and intervene in cases of drug and, to a lesser degree, alcohol abuse at their worksites. Drug testing has joined with other programs and policies (such as Employee Assistance Programs, health promotion programs, and written drug and alcohol use policies) to form more comprehensive responses to workplace substance abuse. Additional research is recommended to further define the integration of strategies to control worksite substance abuse and to examine the outcomes and effectiveness of these efforts.

Footnotes

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[1] See William Sonnenstuhl and Harrison Trice, *Strategies for Employee Assistance Programs: the Crucial Balance*, Second Revised (Ithaca, NY, ILR Press, 1990); Harrison Trice and Janice Beyer, "Work-related outcomes of constructive confrontation strategies in a job-based alcoholism program," vol. 45, *Journal of Studies on Alcohol*, 1984, pp. 393–404; and Harrison Trice and Mona Schonbrunn, "A history of job-based alcoholism programs; 1900–1955," vol. 11, *Journal of Drug Issues* , 1981, pp. 171–98.

[2] Steven Gust and J. Michael Walsh, eds., *Drugs in the workplace: research and evaluation data*, Research Monograph 91 (National Institute of Drug Abuse, Washington, DC, 1989).

[3] D. Ackerman, "A history of drug testing," in R. H. Coombs and L. J. West, eds., *Drug Testing: Issues and Options* (New York, Oxford University Press, 1991), pp. 3–21.

[4] Terry Blum, S. Fields, S. Mine, and C. Spell, "Workplace drug testing programs: a review of research and a survey of worksites," vol. 1, no. 2, *Journal of Employee Assistance Research*, 1992, pp. 315–49.

[5] J. Guthrie and J. Olian, "Drug and alcohol testing programs: do firms consider their operating environment," vol. 14, *Human Resource Planning*, 1991, p. 221.

[6] M. Harris and L. Heft, "Alcohol and drug use in the workplace: issues, controversies, and directions for future research," vol. 18, *Journal of Management*, 1992, pp. 239–66.

[7] Blum and others, "Workplace drug testing programs."

[8] *Survey of Employer Anti-drug Programs*, Report 760 (Bureau of Labor Statistics, January 1989); and Howard Hayghe, Anti-drug programs in the workplace—are they here to stay? *Monthly Labor Review*, April 1991, pp. 26–29.

[9] E. Greenberg, "Workplace testing: results of a new AMA survey," vol. 65, *Personnel*, 1988, p. 36.

[10] *Survey of Employer Anti-drug Programs*, Report 760.

[11] Hayghe, "Anti-drug programs."

[12] The Conference Board, "Surveys reach different conclusions about prevalence of drug testing," vol. 21, *Compensation and Benefits Review*, 1989, p. 13.

[13] Hayghe, "Anti-drug programs."

[14] The Conference Board, "Surveys reach different conclusions."

[15] Blum and others, "Workplace drug testing programs."

[16] U.S. Department of Transportation, Drug and alcohol testing programs: proposed rules, vol. 57, *Federal Register*, 1992, p. 241.

[17] K. Murphy and G. Thornton, "Characteristics of employee drug testing policies," vol. 6, *Journal of Business and Psychology*, 1990, p. 295.

[18] Blum and others, "Workplace drug testing programs."

[19] Harrison Trice and Paul Steele, "Impairment testing: issues and convergence with employee assistance programs," *Journal of Drug Issues*, 1995, in press.

[20] See Blum and others, "Workplace drug testing programs;" Murphy and Thornton, "Characteristics of employee drug testing policies;" and D. Masi, "Company responses to drug abuse from AMA's nationwide survey," vol. 64, *Personnel*, 1987, p. 40.

[21] Trice and Steele, "Impairment testing."

[22] P. Greenfield, R. Karren, and J. Giacobbe, "Drug testing in the workplace: an overview of legal and philosophical issues," vol. 2, *Employee Responsibilities and Rights Journal*, 1989, pp. 1–10.

[23] The Conference Board, "Surveys reach different conclusions."

[24] E. Greenberg, "Workplace testing: results of a new AMA survey."

[25] Terry Blum, "The presence and integration of drug abuse intervention in human resources management," in Steven Gust and J. Michael Walsh, eds., *Drugs in the Workplace: Research and Evaluation Data*, NIDA Research Monograph 91 (Rockville, MD, National Institute on Drug Abuse, 1989), pp. 245–70.

[26] Blum and others, "Workplace drug testing programs."

[27] *Survey of Employer Anti-drug Programs*, Report 760.

[28] *Ibid.*

[29] For the employee characteristics, our questionnaire asked for the percentage of the employee population with the given characteristic and our analysis involved comparing means of these percentages. For the worksite characteristics, our questionnaire asked "Do you have this characteristic?, yes/no." Our analysis involved analyzing 2x2 contingency tables.

[30] Terry Blum and Paul Roman, "A description of clients using employee assistance programs," vol. 16, *Alcohol Health and Research World*, 1992, pp. 120–28; and Lee Robins and D. Regier, *Psychiatric Disorders in America: The Epidemiologic Area Study* (New York, The Free Press, 1991).

[31] Trice and Steele, "Impairment testing."

APPENDIX: Methodology

Sample design

Despite the voluminous literature on drug testing, some of which is cited in this article, the most recent national probability surveys of drug testing prevalence in worksites were conducted by the Bureau of Labor Statistics; one in 1988, and a follow-up of the same worksites in 1990.[1] To ensure that our results would be comparable to these earlier national probability worksite surveys, we designed our study with a similar target population and stratification. The two notable distinctions between the 1988 BLS survey and our survey are that we excluded worksites with fewer than 50 employees (because of data collection costs) and we excluded nonprivate worksites (because of the lack of a comprehensive list).

A worksite represents any business location with a unique, separate, and distinct operation, including headquarter units within an enterprise.[2] Our target population consisted of all worksites with 50 or more employees of private business enterprises in the United States (excluding agricultural enterprises). The sampling frame was constructed using the Dun's Market Identifiers database from Dun's Marketing Services.[3]

The sampling strata were defined on the primary industry at the worksite (manufacturing; wholesale and retail trade; communications, utilities, and transportation; finance, real estate, and insurance; services; and mining and construction) and the number of employees at the worksite (50–99, 100–249, 250–999, and 1,000 or more). The sampling frame included approximately 421,000

worksites. Geographic location (four census regions) was used as a secondary stratification factor within the sample selection procedure. The sample was selected to obtain a proportional allocation within each sampling stratum across four geographic location strata and with equal probability within each stratum. Only worksites that reported 50 or more full-time employees at the time of the survey were eligible for analysis and reporting.

During data collection, the response and eligibility rates were monitored and the sample size in each stratum was supplemented to accommodate differences between projected and actual response and eligibility rates. The final national probability sample ensured adequate sample sizes for estimates defined by the primary industry and the number of employees at the worksite. The final stratified sample contained 6,488 worksites, of which 3,204 were eligible responding worksites. Ineligible worksites included nonprivate worksites, worksites with fewer than 50 full-time employees, and closed worksites. The response rate ranged from 80 percent to 96 percent across the 24 sampling strata, with an overall response rate of 90 percent.[4]

Sampling weights were equal within each sampling stratum, but differed across the strata. The sampling weights were computed from the selection probability of the worksite within the sampling stratum, and, to reduce nonresponse bias caused by the differential response rates, the weights were adjusted to compensate for nonresponse and were poststratified to external counts of worksites.[5]

Response rates

The excellent response rates for the survey indicated a strong willingness of worksite staff to contribute information related to drug and alcohol testing. The overall refusal rate was only 10 percent. Worksites with fewer than 100 employees and worksites in the services and mining and construction industries refused less frequently than other industries.[6]

Data collection

Prior to administering the telephone survey, we mailed a lead letter and an outline of the survey instrument to the director of human resources or the personnel department at each selected worksite. The materials introduced the study, informed personnel of the types of questions we would be asking, and prepared them for the telephone interview. The actual interviewing started approximately 2 weeks after the survey materials were delivered and was conducted using computer assisted telephone interviewing (CATI).[7] The introductory section of the survey instrument confirmed that we contacted the correct worksite, that the worksite was eligible to participate in the survey (that is, a private worksite with 50 or more full-time employees), and that we were speaking with the person most knowledgeable about employee benefits (for example, department heads of human resources, personnel, or an Employee Assistant Program).

After collecting this preliminary information, we then determined whether the worksite had an Employee Assistance Program. If so, we administered 130 additional questions on worksite demographics; characteristics of a worksite's Employee Assistance Program, services provided, and costs; drug and alcohol testing; and employee benefits. For worksites without an Employee Assistance Program, we still collected information on worksite demographics, drug and alcohol testing, and employee benefits. Thus, we collected data on drug and alcohol tests from our entire worksite sample. The average contact time (that is, time to reach and interview a respondent) was 58 minutes for worksites with an Employee Assistance Program and 28 minutes for worksites without one.

Each question on the instrument was displayed for the interviewers in program-controlled sequences on computer terminals, and responses were entered directly into the computer to save time and minimize coding mistakes.

Sampling weights

The stratification and the differential sampling weights across the strata required that the data analysis take into account the complex survey design and the sampling weights. Thus, we computed unbiased national estimates using sampling weights based on selection probabilities and adjusted to compensate for nonresponse. Weighted totals, means, and frequencies and their standard errors were computed using the Survey Data Analysis computer software package (SUDAAN).[8]

Footnotes to the appendix

[1] *Survey of Employer Anti-drug Programs*, Report 760 (Bureau of Labor Statistics, 1989); and Howard Hayghe, Anti-drug programs in the workplace—are they here to stay? *Monthly Labor Review*, April 1991, pp. 26–29.

[2] Kerrie Boyle, Frank Potter, Melodie Rush, and Ellen Stutts, "Survey methodology and performance characteristics for the 1993 National Survey of Worksites and Employee Assistance Programs (NSWEAP)," Proceedings of the American Statistical Association, 1995, section on Survey Research Methods, pp. 485–90.

[3] *Ibid.*

[4] *Ibid.*

[5] *Ibid.*

[6] *Ibid.*

[7] A final version of the full survey instrument is available from the authors. Send request to: Tyler D. Hartwell, Research Triangle Institute, P.O. Box 12194, Research Triangle Park, NC, 27709–2194 or fax to: (919) 541–5966.

[8] Bububhai Shah, Beth Barnwell, Paul Hung, and Lisa LaVange, SUDAAN User's Manual, Release 5.50 (Research Triangle Park, NC, Research Triangle Institute, 1991).

Productivity in industry and government, 1973–94

Alexander Kronemer

The productivity of workers in the nonfarm business sector of the U.S. economy rose by just half a percent in 1994, marking the second year in a row that productivity grew by less than 1 percent. Labor productivity data at the industry level reflect this trend by recording no change from the previous year in the proportion of measured industries registering productivity growth. In 1994, as in 1993, 70 percent of the industries for which data were available recorded labor productivity gains in their production processes.

The underlying trends in output and hours between the 2 years were somewhat different, however. The proportion of measured industries showing growing output and employee hours increased between 1993 and 1994. Output grew in 79 percent of the measured industries in 1994, up from 72 percent in the previous year, while hours rose in 62 percent of them, up from 53 percent in 1993.

This report summarizes these and other findings from a recent BLS update of industry and government productivity statistics. The updated measures are published to the most recent year allowed by the availability of current data which, in most cases, is 1994. The productivity statistics in this report compare output (the production of goods and services) to one or more inputs of production (such as labor hours).[1]

The first section examines labor productivity in selected industries of the private sector. For these industries, labor productivity is calculated as the ratio of output to employee hours.[2] In the second section, the report examines growth rates of multifactor productivity for a subset of industries. Multifactor productivity relates output to the combined inputs of labor, capital, and intermediate purchases. Finally, productivity statistics for a variety of Federal Government functions are reviewed. They measure the relationship between the output of government organizations and the corresponding labor input computed in employee years. Due to budget reductions, the productivity measurement program for the Federal sector has been terminated; statistics presented here represent the final results of the program. BLS Report 906 discusses the history and trends in Federal productivity between 1967 and 1994.

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Labor productivity

BLS currently measures labor productivity for 148 specific industries. In addition, BLS also publishes data on 30 measures defined at higher levels of aggregation, for a total of 178 published series. The analysis in this section refers only to the specific industry measures. Available data allowed 143 of them to be updated to 1994. Together, the total employment of the measured industries covers nearly 40 percent of the total U.S. nonfarm business sector. (The nonfarm business sector accounts for about 75 percent of gross domestic product and excludes the output of general government, nonprofit institutions, private household workers, and the rental value of owner-occupied dwellings.)

The developments in industry productivity in 1994 occurred during the fourth year of the current business cycle recovery.[3] It is possible to chart the trends in productivity, output, and employee hours during these 4 years, and put 1994 into context. (See chart 1.) As can be seen in the chart, during the current business cycle recovery to date, the proportion of published industries that registered productivity growth was highest in 1992. The proportion then declined and has remained steady for 2 years. The percentages of industries recording increases in output and hours have risen constantly during the entire period.

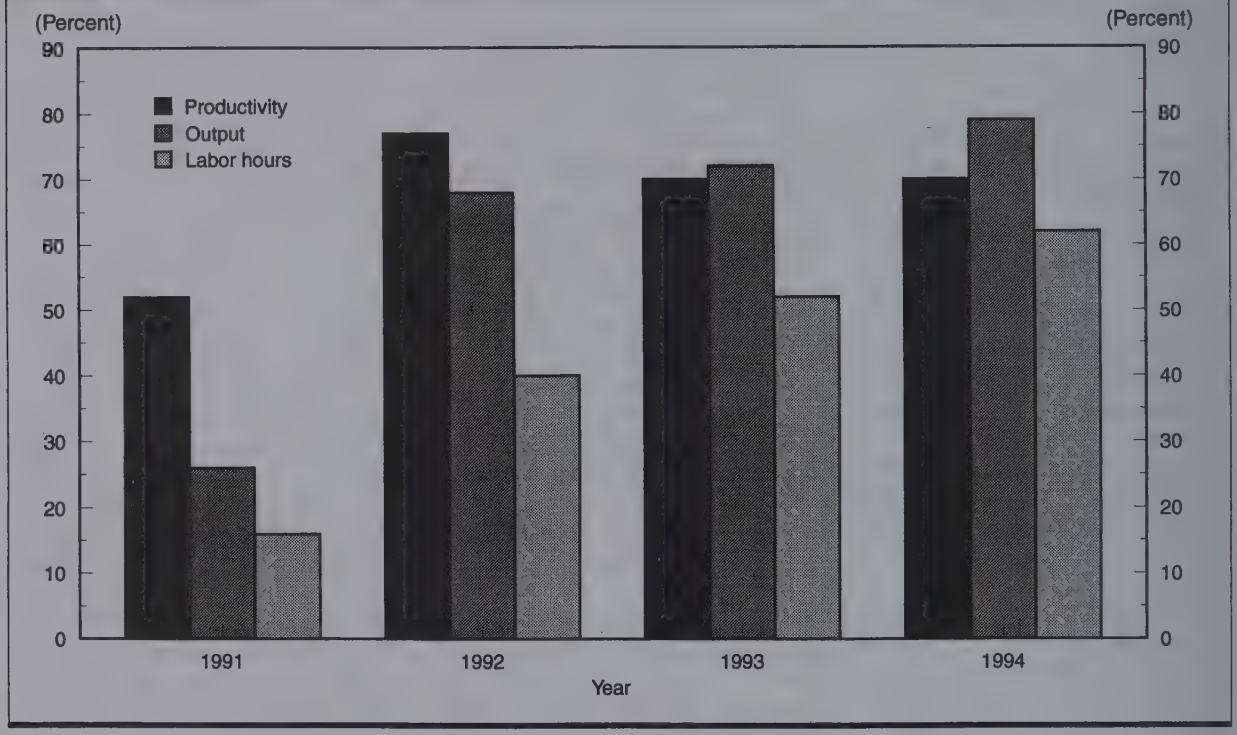
Corresponding trends are found for productivity growth in the overall nonfarm business sector. For the nonfarm business sector, the peak year for productivity improvement was also 1992, when a 3.4-percent growth rate was recorded, while the peak year for growth in output and employee hours was in 1994.

Data to construct industry productivity measures for specific industries in 1995 are not yet available. However, statistics for the nonfarm business sector are available and show that, for the third straight year, productivity growth remained at less than 1 percent. Output and hours both continued to grow, though more slowly than in 1994. Measures of 1995 productivity at the detailed industry level are expected to be available in the spring of 1997.

Goods-producing sector. Sixty-nine percent of the measured industries in the goods-producing sector recorded productivity growth in 1994. This was down slightly from 71 percent in 1993. Output grew in 77 percent of the goods-producing industries, up from 72 percent in 1993, and employee hours increased in 63 percent, up from 50 percent. The goods-producing sector comprises the manufacturing, mining, and construction industries.[4] The measured industries in this sector account for about 40 percent of all employment in the sector.

Twenty of these industries employ 100,000 or more workers. Seventeen of these large employers recorded productivity growth in 1994, and most posted rates well above the 0.5-percent average of the nonfarm business sector. Five had productivity increases of greater than 6 percent. These five industries, which included steel and crude petroleum and natural gas production, were among the top quarter of all the mea-

Chart 1. Percent of industries showing growth in productivity, output, and labor hours, 1991–94



sured goods-producing industries in terms of productivity growth in 1994. Aircraft manufacturing had the worst productivity performance among the large industries. It was also the only large industry to experience a drop in output.[5] (See table 1.)

Service-producing sector. The proportion of measured service-producing industries showing productivity growth climbed to 72 percent in 1994, up from 63 percent in 1993. This gave the service-producing sector a slightly greater percentage of measured industries showing productivity improvement than the goods-producing sector. The service-producing sector also had a greater proportion of industries showing output growth, and fewer registering increases in employee hours than the goods-producing sector. Output growth was recorded in 86 percent of the service-producing industries, up from 70 percent in 1993, while increases in employee hours were registered by 55 percent, down from 62 percent in 1993. Although a higher proportion of service-producing industries recorded productivity improvement in 1994 than in 1993, this was not a high for the 1990–94 period. As with the goods-producing sector, 1992 remains the highest year in the period for the proportion of service sector industries recording productivity gains (77 percent).

The service-producing sector comprises transportation, utilities, communications, wholesale and retail trade, finance, insurance, real estate, and the services industry. (Note the distinction between the *services* industry, which includes personal, business, health, legal, and educational services, and the much broader *service-producing* sector.) As was the case for goods producers, the measured industries in this sector account for about 40 percent of all employment in the sector.

The service-producing sector includes some of the largest industries in the U.S. nonfarm business economy. Many of these are found in retail and wholesale trade. Eating and drinking places, with more than 7 million employees, is the largest industry for which BLS measures productivity. It posted a productivity increase of 0.7 percent in 1994, as output increased by 4.9 percent and employee hours rose 4.2 percent. Among the largest service-producing industries, radio, television, and computers stores, with 364,000 employees, posted the highest productivity growth rate in 1994—15.1 percent. (See table 2.)

As was the case among the goods-producing industries, most of the service sector industries with employment greater than 100,000 recorded higher output in 1994. Output for the nonfarm business sector rose 4.2 percent in 1994, and almost half of the large service-pro-

Table 1. Measured goods-producing industries with employment greater than 100,000, from highest to lowest productivity rates, 1994

[Percent change]

SIC code	Industry	1994 employment (thousands)	Productivity	Output	Hours
2869	Industrial organic chemicals, n.e.c.	115	9.2	3.6	–5.1
261,2,3	Pulp, paper, and paperboard mills	232	6.6	6.0	–.6
221,2	Cotton and synthetic broadwoven fabrics	149	6.4	4.3	–1.9
331	Steel	239	6.3	7.2	.8
131	Crude petroleum and natural gas production	162	6.2	.3	–5.5
2653	Corrugated and solid fiber boxes	125	4.8	7.9	3.0
3465	Automotive stampings	106	3.1	10.2	6.9
14	Nonmetallic minerals, except fuels	103	3.7	6.6	2.9
3585	Refrigeration and heating equipment	129	3.6	13.9	10.0
12	Coal mining	112	3.4	8.9	5.4
291	Petroleum refining	109	3.1	.0	–3.0
308	Miscellaneous plastics products, n.e.c.	690	3.0	9.7	6.5
371	Motor vehicles and equipment	899	3.0	14.3	10.9
2421	Sawmills and planing mills, general	150	1.1	5.8	4.7
205	Bakery products	213	.8	3.3	2.5
2511,17	Wood household furniture	132	.2	3.0	2.8
2015	Poultry dressing and processing	224	.1	4.6	4.5
2431	Millwork	110	–3.1	4.1	7.4
2011	Meat packing plants	138	–3.7	.3	4.2
3721	Aircraft manufacturing	271	–7.5	–16.9	–10.1

NOTE: n.e.c. = not elsewhere classified.

Table 2. Measured service -producing industries with employment greater than 100,000, from highest to lowest productivity rates, 1994

[Percent change]

SIC code	Industry	1994 employment (thousands)	Productivity	Output	Hours
573	Radio, television, and computer stores	364	15.1	24.8	8.5
753	Automotive repair shops	543	7.6	7.0	–.5
525	Hardware stores	175	6.9	5.7	–1.3
566	Shoe stores	211	6.3	1.0	–5.0
491,3 (pt.)	Electric utilities	564	5.9	3.0	–2.8
565	Family clothing stores	337	4.6	6.6	2.0
723	Beauty shops	385	4.3	1.1	–3.1
531	Department stores	,212	3.3	8.2	4.7
701	Hotels and motels	1,566	3.3	4.2	.9
553	Auto and home supply stores	392	2.5	6.1	3.6
554	Gasoline service stations	662	2.3	2.4	.0
546	Retail bakeries	190	2.1	5.4	3.2
721	Laundry, cleaning, and garment services	423	2.0	1.1	–.9
4512,13,22 (pts.)	Air transportation	584	1.8	3.4	1.5
594	Miscellaneous shopping goods stores	1,058	1.6	4.1	2.5
551	New and used car dealers	964	1.4	6.8	5.3
481	Telephone communications	903	.9	4.0	2.9
58	Eating and drinking places	7,354	.7	4.9	4.2
571	Furniture and homefurnishing stores	563	–.2	5.2	5.5
562	Women's clothing stores	361	–.3	–3.8	–3.6
591	Drug stores and proprietary stores	611	–1.0	.2	1.0
541	Grocery stores	3,047	–1.1	.3	1.5
5093	Scrap and waste materials	142	–2.6	8.3	11.3
592	Liquor stores	148	–3.8	.9	4.9
492,3 (pt.)	Gas utilities	190	–4.5	–6.0	–1.5
533	Variety stores	149	–8.9	–13.6	–5.1

ducing industries had output gains equal to or greater than that.

Of the large service-producing industries that registered the 10 strongest productivity increases in 1994, all recorded output gains and half experienced reductions in hours. This was particularly striking in several industries, such as automotive repair shops and hardware stores, which achieved solid output increases with fewer hours input.

Long-term trends, 1973–94. Productivity increased in 89 percent of the 139 industries with data available for the period 1973 to 1994. Average annual changes in productivity ranged from a low of –2.0 percent per year in crude petroleum and natural gas production to a high of 10.3 percent per year in household audio and video equipment. Output rose in 67 percent of the industries and hours in 33 percent.

When the industries are divided according to whether they are in the goods-producing or service-producing sectors, differences are evident. (See chart 2.) Among the measured goods-producing industries, 91 percent recorded productivity gains, 63 percent had growing output, and 24 percent increased labor hours from 1973–94. In the service-producing sector, only 81 percent recorded productivity gains over the period. Output rose for 81 percent and labor hours increased for fully 70 percent.

Among the largest measured industries, most experienced long-term productivity growth, although again there were differences between the two sectors. In the entire nonfarm business sector, productivity grew at an average annual rate of 1.2 percent over the period. Most of the large goods-producing industries recorded growth rates above that. Just six had productivity rates below the annual average for the nonfarm business sector, and only two actually had decreasing productivity over the period.

In contrast, 11 of the large industries in the service-producing sector recorded

annual rates of productivity less than 1.2 percent between 1973–94. Five of these had falling productivity, including the two largest measured industries, eating and drinking places and grocery stores. During the period, productivity for those two industries slipped –0.3 percent and –0.8 percent per year, respectively.

Multifactor productivity

The labor productivity measures discussed in the previous section relate output solely to the labor input. In multifactor productivity measures, output is related to the combined inputs of labor, capital, and intermediate purchases. Multifactor productivity is equal to output per hour minus the effects of changes in capital per hour and intermediate purchases per hour.[6]

Changes in overall economic efficiency are more nearly reflected in multifactor productivity measures than in labor productivity data because they account for the effects of changes in the ratios of the two other inputs to labor. For example, suppose that a decline in the price of capital induces an industry to purchase more of that input. The capital-labor ratio rises and the industry can produce more output with the same amount of labor. Output per employee hour will increase but the multifactor productivity measure may be unchanged (assuming that nothing else affecting multifactor productivity, such as the type of technology used, has changed). Therefore, while the movement of the labor productivity measure suggests that there has been an efficiency gain, the multifactor productivity statistic may indicate that there has not been a change in the overall efficiency of input use in the industry.[7]

Because of the enormous amount of data required to measure capital and intermediate purchases, only a limited number of industry multifactor productivity measures has been published.[8] BLS continues to develop multifactor productivity measures, and a new industry—refrigeration and heating equipment—appears for the first time in this report. This brings the total number of multifactor productivity measures to ten, nine of which are goods-producing industries, while one is a service-producing industry. They are:

Cotton and synthetic broadwoven fabrics
Metal stampings
Household furniture
Farm and garden machinery
Tires and inner tubes
Refrigeration and heating equipment
Footwear
Motor vehicles and equipment
Steel
Railroad transportation (data available through 1993 only)

Current trends. In 1994, multifactor productivity rose in all nine of the measured goods-producing industries, ranging from a high of 7.5 percent in the cotton and synthetic broadwoven fabrics industry to a low of 0.1 percent in the household furniture industry. In 1993, eight of the nine measured goods-producing industries recorded increases in multifactor productivity. The one declining industry was motor vehicles and equipment. Within the service-producing sector, multifactor productivity for railroad transportation increased 3.3 percent in 1993, the latest year available for that industry.

Among the largest industries for which multifactor productivity is calculated, motor vehicles and steel both recorded only slight increases in multifactor productivity in 1994 of 0.5 percent and 1.0 percent, respectively. For both industries the multifactor growth rate in 1994 was significantly lower than the corresponding labor productivity growth rate. The strong increases in output that these industries posted in 1994 were accompanied by similarly strong increases in combined inputs, led by intermediate purchases. The substitution of intermediate purchases (materials, fuel, electricity, and purchased services) for labor accounted for most of the increase in labor productivity for the two industries in 1994.

In cotton and synthetic broadwovens, which posted the highest multifactor productivity increase in 1994, multifactor productivity growth exceeded labor productivity growth in 1994. In contrast to steel and motor vehicles, labor was sub-

Chart 2. **Percent of industries showing growth in productivity and related variables, by industry sector, 1973–94**

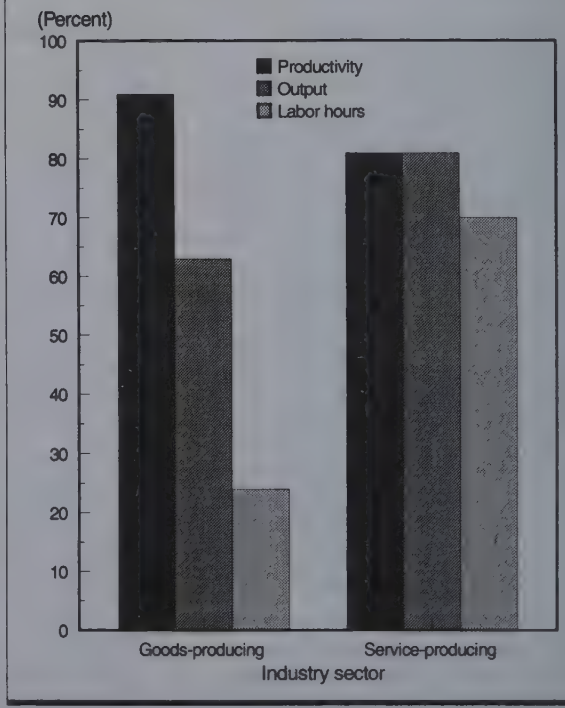
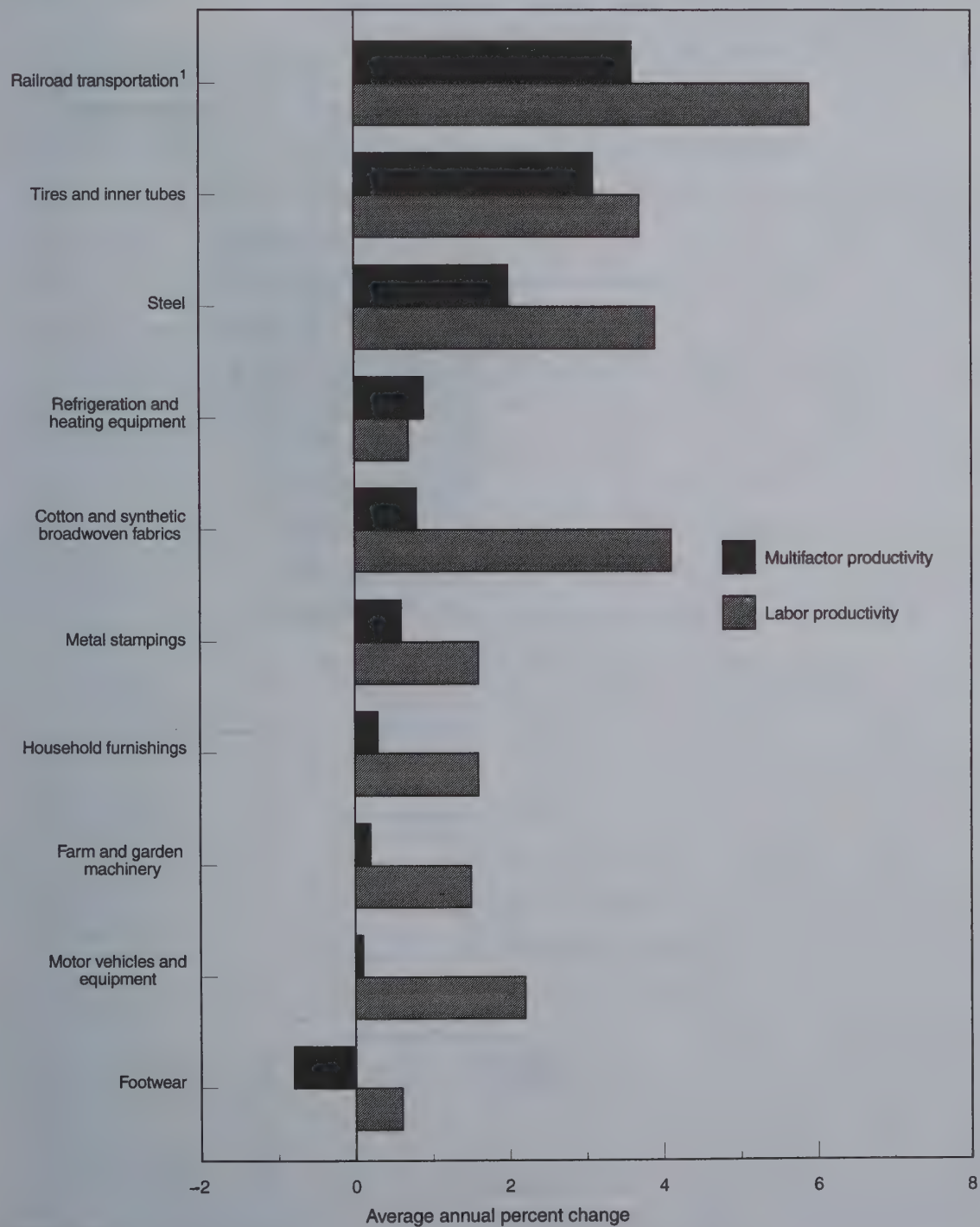
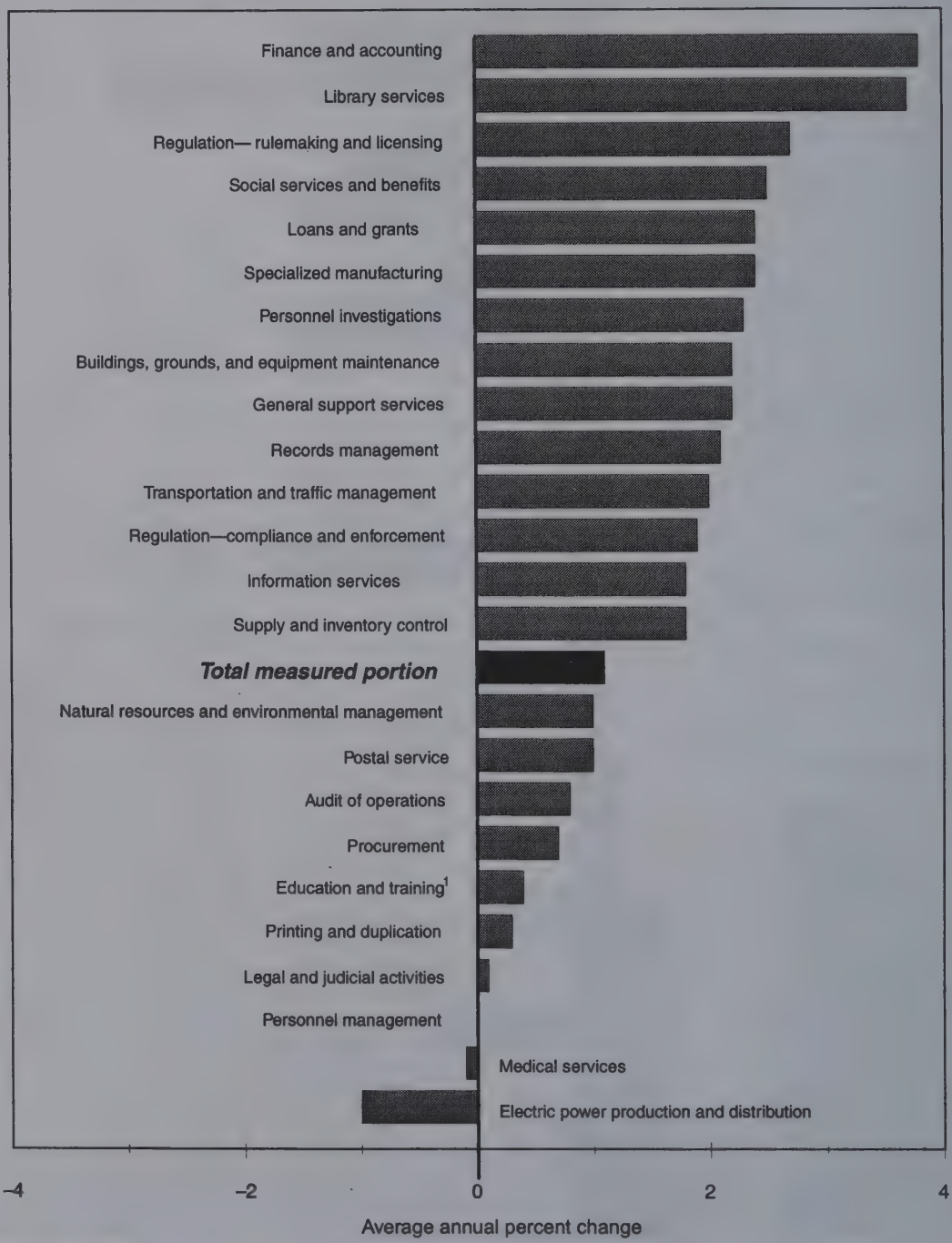


Chart 3. Multifactor productivity and labor productivity in 10 industries, 1973–94



[1] Updated to 1993.

Chart 4. **Output per employee year in the Federal Government, by function and for the total measured portion, fiscal years 1967–94**



[1]Measure begins in 1968.

NOTE: Average annual percent change using compound rate formula.

stituted for intermediate purchases in this industry, thus lowering measures of labor productivity growth.

Long term trends. From 1973 to 1994, multifactor productivity increased in 9 of the 10 measured industries. In most, labor productivity growth exceeded multi-factor productivity growth, as capital and/or intermediate purchases were substituted for labor hours in the long run. These substitutions sometimes account for more than half of the improvement in an industry's labor productivity. (See chart 3.)

Government productivity

Labor productivity in the Federal Government is measured as output per employee year, rather than output per employee hour. The overall productivity measure for the Federal Government, which includes data from 255 organizations in 60 Federal agencies, has been updated to fiscal year 1994. These organizations employ 69 percent of the total Federal executive branch civilian workforce. They are grouped into 24 functions based on similarity of tasks performed, such as auditing, communications, personnel, or regulation.[9]

Output per employee year for the measured portion of the Federal Government in fiscal year 1994 was unchanged. This reflected an increase of 1 percent in output and an increase of 0.9 percent in employee years. While employment in the Federal Government has been shrinking overall, several large organizations measured by BLS, such as the Department of Justice, the U.S. courts, and the U.S. Postal Service, showed slight employment increases in 1994.

Among the 24 measured Federal Government functions, 14 experienced productivity increases in 1994. Productivity changes ranged from an increase of 11.8 percent in finance and accounting to a decrease of 5.6 percent in personnel management.

Long-term trends. Between 1967 and 1994, productivity in the measured portion of the Federal Government rose at an average annual rate of 1.1 percent. This reflects an average annual increase in output of 1.4 percent and an annual increase in employee years of 0.3 percent.

Among the 24 measured Federal Government functions, finance and accounting experienced the largest average annual increase in productivity over the long term, 3.8 percent, while electric power showed the greatest decline, –1.0 percent (see chart 4). This decline was due to a small average increase in output of 0.4 percent and an annual increase in employee years of 1.4 percent. Regulatory problems associated with delays in nuclear power production and dry weather conditions affecting the production of power for hydroelectric plants have contributed to the decline in productivity.

Medical services was the only other function to experience a long-term decline. Fourteen functions showed productivity increases above the overall average of 1.1 percent. The U.S. Postal Service was just under that average. Postal Service productivity rose 1.0 percent annually, the result of an average annual increase of 1.9 percent in output and an annual increase of 0.9 percent in employee years.

Additional information

Futher analysis and detailed historical data for all the published industries can be found in the BLS Bulletin, *Productivity Measures for Selected Industries and Government Services*, Bulletin 2480 (Bureau of Labor Statistics, 1996). It is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402, or may be obtained from BLS as long as supplies last. Also, table 41 in every issue of the *Monthly Labor Review* gives annual indexes of industry labor productivity from 1990 forward and selected earlier years. Answers to questions on productivity and productivity measurement and additional information are available from the Office of Productivity and Technology, Bureau of Labor Statistics, Washington, DC, 20212, telephone: (202) 606–5600, World Wide Web (http://stats.BLS.gov). □

Footnotes

[1] The Division of Industry Productivity Studies of the Office of Productivity and Technology is the primary source of data on trends in industry productivity in the United States. BLS currently maintains measures of labor or multifactor productivity for 178 industries and for a substantial portion of the Federal Government.

[2] Although these labor productivity measures relate output to hours of labor, they do not measure the specific contribution of labor to production. Instead, they reflect the joint effects of many influences, including changes in technology; capital investment; the scale of operations; utilization of capacity, energy, and materials; managerial skill; and the skill, education, and experience of the work force.

[3] Based on data from the National Bureau of Economic Research, there have been four business cycle periods between 1973 and 1994. They are 1973–79, 1979–81, 1981–90, and 1990–94 The 1990–94 period is not a complete business cycle, as this latter business cycle has continued into 1996.

[4] The Bureau does not produce any productivity measures for the construction industry due to lack of data.

[5] For more information on productivity in aircraft manufacturing, see Alexander Kronemer and J. Edwin Henneberger, "Productivity in aircraft manufacturing," *Monthly Labor Review*, June 1993, pp. 24–33.

[6] These effects are measured as the change in the ratio of nonlabor inputs, weighted by the nonlabor input's share in the total cost of output.

[7] Although multifactor productivity is sometimes interpreted as measuring technological change, it also is influenced by such factors as changes in the scale of operations; capacity utilization; managerial skill; and the skill, education, and experience of the work force.

[8] For purposes of multifactor productivity measurement, capital includes equipment, structures, land, and inventories. Financial capital is not included. Intermediate purchases are composed of materials, fuel, electricity, and purchased services.

[9] The overall productivity series does not represent Federal productivity as a whole, but rather the productivity of the combined organizations. The series is computed by dividing a weighted output index of the 255 organizations by the aggregate labor index of employee years (an employee year equals 2,087 hours).

Bangalore: India's silicon city

John Stremlau

If an automatic teller machine in Boston, MA, swallows your bankcard because of a problem with the machine's new software, the problem may be fixed overnight by experts in Bangalore, India. Or suppose a fault in the Holiday Inn computer misdirects reservations: with a few key strokes, programmers at a fast-growing Bangalore company—Infosys Technologies—can access the hotel chain's central computer and repair the system that they designed. Many other international companies—General Electric, IBM, Reebok, AT&T/NCR, Texas Instruments, 3M, Hewlett-Packard, and Compaq, to name a few—depend on computer software developed and maintained in Bangalore.

Since 1990, India's annual software exports have soared, increasing 53 percent to reach $500 million in the 1994-95 fiscal year alone. Annual industry revenues in India totaled $840 million during the same fiscal year, and the National Association of Software and Service Companies estimates that sales will hit $5 billion by the end of the decade. The skills of India's top computer scientists are unsurpassed. The Capability Maturity Model, developed by the Software Engineering Institute at Carnegie Mellon, has been used to evaluate the software development processes of hundreds of companies. Software teams receive a rating of one through five, five being the highest. Less than a handful have yet to achieve a level-five rating, but one that did was Motorola's software team in Bangalore. According to a quality assurance consultant at Motorola, this facility routinely produces systems with a measured failure of one per million lines of code.

During the 1980s, Bangalore's main software industry exports were, in fact, not products, but people: software engineers and programmers who took jobs in the United States. Each year, the number of computer science graduates from Indian universities averaged around 15,000, and many went to the United States. As of 1990, India-born immigrants were 2.3 percent of all foreign-born residents and had the highest median household income of any immigrant nationality. By the mid-1990s, however, improved telecommunications technologies and Indian economic reforms made it relatively easy to contract with Indian firms or to set up one's own shop in an information-age "free trade zone," such as Bangalore's Software Technology Park.

International competition is hardly new. But thus far, American blue-collar workers have borne the brunt of these job losses. Workers in Bangalore, however, are not doing the routine assembly of circuit boards, nor are they just doing data input and routine processing work. Instead, Bangalore's engineers are designing the software programs that tell computers what to do. And American white-collar workers are having to compete with equally well-trained and, judging by the Motorola example, at least equally competent computer programmers in Bangalore.

Indian economic analysts view Bangalore's success in computer software as evidence that India can catapult to the forefront of the 21st century global economy. Stepping so rapidly into the top ranks of global information technology is seen as a refutation of conventional development theory, which consigned the "Indias" of the world to the same long, slow path Western industrial nations followed—from agriculture through manufacturing to high-tech services.

Roots of success

Bangalore's high-tech entry into the global economy has some of its roots in legacies of British rule until Indian independence in 1947 and since then, in the ambitions of New Delhi's economic planners. Neither London nor New Delhi, however, anticipated—much less planned—Bangalore's emergence as a global software center. But both the British colonialists and India's post-independence ruling elite invested in Bangalore in ways that may help explain the city's current success.

Great Britain's greatest enduring contributions to India were the English language and law. The British built on India's rich traditions of scientific learning, including more than a millennium of achievements in mathematics, to develop the system of higher education that is a cornerstone of today's computer industry. Finally, British legal traditions have given India the reliable system of commercial law that neighboring China lacks, according to recent conference reports of the Organization for Economic Co-operation and Development (OECD).

We may debate just how much Bangalore owes such British contributions, but there can be no doubt that modern Bangalore reflects decisions made by post-independence governments in New Delhi. Jawaharlal Nehru, India's first prime minister, had a vision for Bangalore. Calling Bangalore India's "City of the Future," he sought to turn it into a place where scientists could get away from the multitudes and produce ideas and programs that would guide the nation's ambitious plans to achieve economic and military self-reliance. For more than four decades, India's central government invested heavily in building Bangalore's civilian science and technology infrastructure as well as the nation's most advanced military and space research facilities.

John Stremlau, a staff advisor at the Carnegie Commission on Preventing Deadly Conflict, traveled in India. A more detailed version of this report appears in *Foreign Policy*, spring 1996.

Today, the city boasts 3 universities, 14 engineering colleges, 47 polytechnic schools, and a wide variety of research institutes. There are also various industrial-training institutes, including a high-tech "village" that houses the acclaimed Indian Institute of Management. The main operations for such public-sector giants as Hindustan Aeronautics, Bharat Electronics, Indian Telephone Industries, Hindustan Machine Tools, and the Indian Space Research Organization (which develops and launches satellites for civilian purposes) are all located in Bangalore.

Strength and weakness

By suddenly jumping into advanced software engineering, Bangalore has challenged the established economic principle that in order to succeed internationally in a sector of advanced technology, there must be a strong domestic market in that sector. Domestically, India has one of the lowest concentrations of computers and some of the poorest telephone networks in the world. There are only seven computers for every 10,000 Indians, compared with an average of 250 per 10,000 persons worldwide and fully 2,500 in the United States.

Telecommunications infrastructure is often cited as a major obstacle to India's information technology program. Telephone density is just 70 per 10,000 in India, far short of even the 700 per 10,000 of Brazil, never mind the 4,900 of America. Cellular service did not begin in India until August 1995—and then only in the four largest cities. Nor has there been, to date anyway, widespread investment in fiber optic trunklines.

Yet, according to the *Economist*, despite India's widespread underdeveloped and generally low incomes, "more than 150 million Indians belong to well-educated families with salaries worth more than $4,000 in local purchasing power." Education up to high school is mandatory and India's base literacy rate is 52 percent, compared with 35 percent in the neighboring South Asian nations of Pakistan and Bangladesh. In addition to the abundance of university-trained engineers, thousands of Indian high school graduates are certified in software language and packages at a network of technical training institutes.

Yet the vision of a development shortcut through information technology is clouded by its potential for worsening the disparities of income and wealth among the people of Bangalore. Indian computer professionals may come cheap by western standards, but theirs is a princely salary in a predominantly agrarian country of nearly 1 billion people. Salaries in computer science are rising quickly in India, about 25 percent each year, with star programmers commanding world-class contracts and bonuses. A conspicuous class of software entrepreneurs has also emerged in Bangalore, operating firms that have made them instant multimillionaires. At the same time, the average per capita annual income in Bangalore is still only $404, a bit higher than the country's national average of $300. Thus, ironically, success in information technology may have the effect of narrowing income gaps between nations, while deepening disparities within them.

At the lower end of the economic scale, even modest efforts can have a very positive impact on the Bangalore community. For example, a grant for approximately $250,000 from the International Development Research Center for Canada enabled researchers at a Bangalore institute to improve a process that converts woven bamboo mats into a strong, plywood-like material. The Center hopes the new process will increase the demand for bamboo mats, thereby raising the incomes of those who weave them: predominantly poor, rural women. According to a project leader, annual sales of the material could reach $100 million. Another project, backed by USAID, is helping sort and recycle waste by mobilizing workers who previously had been considered mere "ragpickers."

Bangalore was one of five cities *Time* (a U.S. magazine) selected for visits by 45 top U.S. executives to inform them about "the connections between the U.S. and the complex forces outside its borders that will shape the 21st century." The executives left Bangalore having learned about the impact of India's economic reforms, the investment in human capital, and the degree of internationalization exemplified by daily video conferences between some office in Bangalore and others across the United States. To some degree, however, the success of Bangalore's "silicon city" may rest as much on bamboo mats as on high-tech software. While the 150 million most well-off Indians may certainly be a significant market and are part of what draws foreign investors to Bangalore, the leverage that creates a potential $100 million industry out of a $250,000 grant will also be needed as India faces the 21st century. □

Dear Editor:

This refers to the article entitled "The public-private pay debate: what do the data show?" by Michael A. Miller., appearing in the May 1996 issue of the *Monthly Labor Review.*

Mr. Miller concluded that government employees, at least in the white-collar area, are paid less per week than employees in the private sector. However, he does not answer the real question of whether *compensation* for public employees *per hour worked* is higher than the compensation paid per hour worked for comparable employees in the private sector.

By compensation, I mean the traditional measure of all elements of pay including fringes, health and welfare, and payroll taxes. By per hour worked, I mean the number of hours that an employee actually works and this excludes holidays, vacations, sick leave, and any other type of paid leave.

It should not be difficult to get credible estimates of total compensation and hours worked, by occupation, for both the private and public sectors. This should be done, and if is, it will settle the controversy once and for all. I would be very much interested in whether Mr. Miller's conclusions remain the same after he takes all of the relevant factors into account.

[signed] John Roberts
Support Services for Collective Bargaining/Litigation

Dear Mr. Roberts:

The two issues you raise—using wages or total compensation, and comparing costs per hour paid or costs per hour worked—are important when making comparisons between sectors of the economy. The studies we have made to date, however, have been limited by the underlying survey data.

Our studies have used data from two survey programs that differ in what elements of compensation are included, how costs are calculated, and how occupations are defined. Your letter asks about the first two of these differences. The primary data used in Mr. Miller's article were from the Occupational Compensation Survey Program (OCSP), and are limited to straight-time wages and salaries. Pay rates are expressed in terms of the standard hours employees regularly work, but do not include adjustments for paid leave.

On pages 20 and 21 of his article, Mr. Miller summarized the results of an earlier study that did include a comparison of total compensation (wages and benefits). This earlier study, "Cost of employee compensation in public and private sectors," was written by Bradley R. Braden and Stephanie L. Hyland and appeared in the May 1993 issue of the *Review.* The Braden/Hyland article primarily used cost per hour worked data from the Employment Cost Index (ECI) to compare compensation differences in the public and private sectors. In calculating the costs per hour worked, costs for wages and salaries (including overtime pay) and employee benefits were divided by hours worked (scheduled hours plus overtime hours, less leave hours).

Direct analysis of the two survey datasets is difficult, largely because of the differences noted above; but some rough comparisons can be made. One major difference is that the ECI data contains employee benefits costs, whereas the OCSP is limited to wages and salaries. According to the ECI data, employee benefits (including overtime pay) comprise roughly the same proportions of total compensation in private industry as in State and local governments. In 1992, benefits represented 28.2 percent of compensation costs in private industry and 30.2 percent in State and local governments.

The second major difference you note involves the ECI calculating costs per hour worked, and the OCSP publishing wages and salaries for the regular straight-time work schedule. Because overtime pay (about 1 percent of total compensation costs in 1992) is small relative to paid leave (about 7 percent), we believe the main difference between the two series would be in paid leave costs. The proportionate share for paid leave—6.8 percent of total compensation costs in private industry and 7.7 percent in State and local governments—was comparable between the two sectors in 1992.

For white-collar occupations, average standard weekly hours are reported in the *OCSP National Summary, 1993* (Bureau of Labor Statistics Bulletin 2458), in the second column of tables A-1 to A-3. These weekly hours are similar for private industry and State and local government workers in most of the occupations that could be compared. Data for blue-collar workers are published as hourly rates in OCSP; so information on work schedules is not available for comparison.

The third major difference is in how occupations are defined. The ECI covers all workers, but the size of the sample limits its occupational comparisons to nine major occupational groups. While this allows some significant comparisons, the data from the OCSP reported by Mr. Miller is unique in its occupational detail. On the other hand, as Mr. Miller noted on page 21 of his article, the OCSP occupations covered only about 8 percent of the surveyed work force.

We are currently in the process of combining our three major surveys—OCSP, ECI, and the Employee Benefits Survey—into one major program, called COMP 2000, which will allow for more detailed comparisons of total compensation for individual occupations or occupational groups than are currently possible. As part of the COMP 2000 program, we are also considering publishing both measures of cost per hour worked and cost per hour paid.

[signed] Kathleen M. MacDonald
Assistant Commissioner for Compensation Levels and Trends
Bureau of Labor Statistics

Human development

Reflections on Human Development. By Mahbubul Haq. New York, Oxford University Press, 1995, 253 pp. $12.95, paper.

In *Reflections on Human Development,* Haq tells the story of what went wrong with development planning and how it began to turn around in recent years. His thesis is that planners devoted too much attention to national income targets and physical capital, and insufficient attention to human capital. "There is no automatic linkage between economic growth and human lives," he says. To underline his points about the misfocus in development economics, Haq begins his book chapters with an apposite quotation from *Alice in Wonderland.*

Recognizing that development planners can only work with data they have, Haq, in the late 1980s, began to push for a new report that would provide more people-centered information for each country. What emerged was the annual *Human Development Report,* which ranks all countries according to a composite Human Development Index (HDI). The key variables are life expectancy, adult literacy, mean years of schooling, and adjusted Gross Domestic Product (GDP) per capita. GDP is adjusted by lopping it off at a certain point on the presumption that there is a sharply diminishing return for higher incomes.

The HDI has become a useful analytical tool because countries with similar national incomes have varying HDI's. Economists can look for differences in government policy that may account for this variance. The use of such indexes as a target may result in improving the standard of living, especially for the poor. Haq is unclear as to whether he thinks that higher HDI's will translate into higher GDP's in the long run.

The author admits that the HDI could be improved. He discusses some technical criticisms and responds to them. He also explores the idea of a political freedom index. He points out that "A society does not have to be rich to afford democracy."

Haq levels strong criticism at the World Bank and the International Monetary Fund for urging countries to reduce the size of their governments without distinguishing between useful and nonuseful programs. Instead of cutting back on health, education, and skills training, Haq believes that debt-ridden countries should have cut back on business subsidies and military expenditures. He also criticizes the Bank and Fund for not involving United Nations (U.N.) agencies—such as the World Health Organization and the International Labor Organization—in reviews of country performance.

Haq believes that the "quality of government action" is a neglected factor of development. He credits the World Bank for belatedly recognizing this, but believes that more attention is needed to this area. Economists missed this vital point because they concentrated on how projects looked on paper.

Some of the best chapters concern the foggy concept of "sustainable development." The book states that society's goal should be to preserve the capacity to produce a similar level of human well-being in the future, while recognizing that the stock of physical, human, and natural resources will change over time. As Haq explains, "We do not have to leave the natural world in exactly the shape in which we found it."

The book is also very good in pointing to the need for more visionary economic policies. At the national level, countries need to invest resources in poor people. At the international level, industrial countries should do much more to help the poor countries. Haq suggests that industrial countries with immigration and trade barriers should "compensate" developing countries for these policies. He also suggests the need for global taxes—for example, on nonrenewable energy consumption.

Haq is not enamored with the periodic U.N. conferences on population, children, and cities. Instead, he believes that a new U.N. Economic Security Council is needed to give continuous attention to global governance issues. He would like this Council to oversee the Bretton Woods institutions. He would give it a professional secretariat.

Mahbub ul Haq has been an inspiration to many decades of development analysts. His *Reflections on Human Development* are articulate and thoughtful. He urges that we develop "new strategies of sustainable human development that weave development around people, not people around development."

At the end of the book are 10 country tables with various development indicators. The table on "indicators of human progress" includes school enrollment, years of schooling, daily calorie supply, access to safe water, radios, and daily newspapers.

The idea that people are central to development is not a new idea to the Labor Department. For many years, there was a Department of Labor International Technical Assistance Corps that carried out projects in developing countries. The Corps' attention to worker training and other labor market issues ran counter to the development strategies of the 1980s, and the program was discontinued.

—Steve Charnovitz

Director, Global Environment and Trade Society
Yale University

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MANAGEMENT AND CIRCULATION
(Required by 39 U.S.C. 3685)

1. — Title of Publication: *Monthly Labor Review*
2. — Publication Number: 0098-1818
3. — Date of Filing: October 1, 1996
4. — Frequency of Issue: Monthly
5. — Number of Issues Published Annually: 12
6. — Annual Subscription Price: $29
7. — Complete Mailing Address of Headquarters of General Business Office of Publisher: U.S. Department of Labor, Bureau of Labor Statistics, 2 Massachusetts Ave., NE, Washington, DC 20212
8. — Complete mailing address of Headquarters of General Business Office of Publisher: U.S. Department of Labor, Bureau of Labor Statistics, 2 Massachusetts Ave., NE, Washington, DC 20212
9. — Names and Complete Addresses of Publishers, Editor, and Executive Editor: Publisher: U.S. Department of Labor, Bureau of Labor Statistics, Office of Publications, 2 Massachusetts Avenue, N.E., Washington, DC 20212; Editor: Deborah P. Klein, same address; Executive Editor: Richard M. Devens, Jr., same address
10. — Owner: U.S. Department of Labor, Bureau of Labor Statistics, 2 Massachusetts Avenue, N.E., Washington, DC, 20212
11. — Known Bondholders, Mortgagees, and other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities: None
12. — Purpose, Function and Nonprofit Status: Not applicable
13. — Publication Name: Monthly Labor Review
14. — Issue Date for Circulation Data Below: October 1, 1996
15. — Extent and Nature of Circulation:

	Average number of copies each issue during preceding 12 months	Actual number of copies of single issues published nearest to filing date
A. Total number copies printed (net press run)	12,032	11,921
B. Paid circulation:		
1. Sales through dealers and carriers, street vendors, and counter sales	3,911	3,652
2. Mail subscription	7,612	7,760
C. Total paid circulation	11,523	11,412
D. Free distribution by mail, carrier, or other means (samples, complimentary, and other free copies)	240	240
E. Free distribution outside the mail	125	125
F. Total free distribution (sum of D and E)	365	365
G. Total distribution (sum of C and F)	11,888	11,777
H. Copies not distributed:		
1. Office use, leftover, unaccounted, spoiled after printing	144	144
2. Returns from news agents	—	—
I. Total (sum of G and H—should equal net press run shown in A)	12,032	11,921

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[Signed] Richard M. Devens, Jr., Executive Editor

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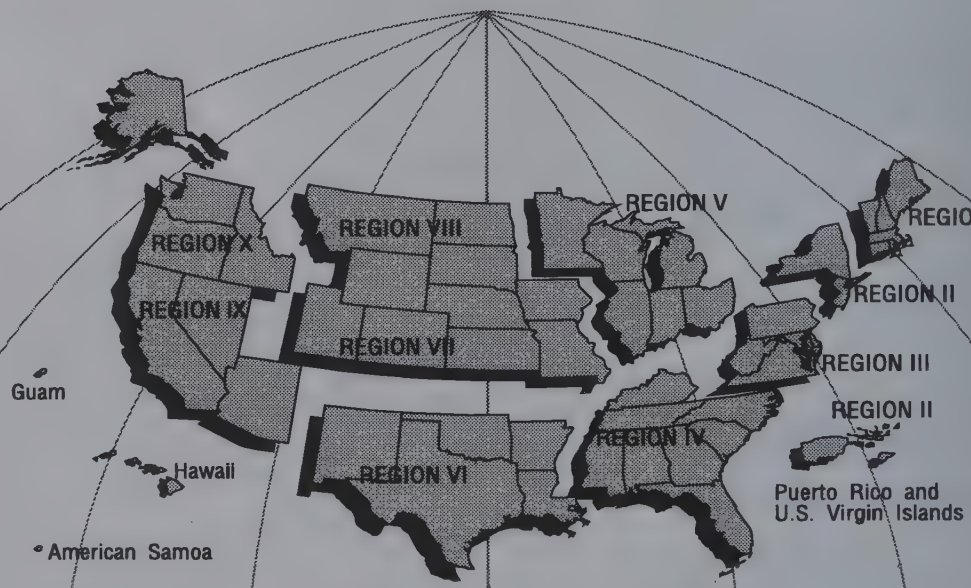

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This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics: series on labor force; employment; unemployment; labor compensation; consumer, producer, and international prices; productivity; international comparisons; and injury and illness statistics. In the notes that follow, the data in each group of tables are briefly described; key definitions are given; notes on the data are set forth; and sources of additional information are cited.

General notes

The following notes apply to several tables in this section:

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect on the data of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might prevent short-term evaluation of the statistical series. Tables containing data that have been adjusted are identified as "seasonally adjusted." (All other data are not seasonally adjusted.) Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years.

Seasonally adjusted data appear in tables 1–14, 16–17, 42, and 46. Seasonally adjusted labor force data in tables 1 and 4–9 were revised in the April 1996 issue of the *Review*. Seasonally adjusted establishment survey data shown in tables 1, 12–14 and 16–17 were revised in the July 1996 *Review* and reflect the experience through March 1996. A brief explanation of the seasonal adjustment methodology appears in "Notes on the data."

Revisions in the productivity data in table 42 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month-to-month and quarter-to-quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All-Items CPI. Only seasonally adjusted percent changes are available for this series.

Adjustments for price changes. Some data—such as the "real" earnings shown in table 14—are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current-dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of $3 and a current price index number of 150, where 1982 = 100, the hourly rate expressed in 1982 dollars is $2 ($3/150 x 100 = $2). The $2 (or any other resulting values) are described as "real," "constant," or "1982" dollars.

Sources of information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. Definitions of each series and notes on the data are contained in later sections of these Notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, Bulletin 2414. Users also may wish to consult *Major Programs of the Bureau of Labor Statistics*, Report 871. News releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule appearing on the back cover of this issue.

More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in the Bureau's monthly publication, *Employment and Earnings*. Historical unadjusted data from the household survey are published in *Labor Force Statistics Derived From the Current Population Survey*, BLS Bulletin 2307. Historical seasonally adjusted data are available from the Bureau upon request. Historically comparable unadjusted and seasonally adjusted data from the establishment survey are published in *Employment, Hours, and Earnings, United States*, a BLS annual bulletin. Additional information on labor force data for sub-States are provided in the BLS annual report, *Geographic Profile of Employment and Unemployment.*

For a comprehensive discussion of the Employment Cost Index, see *Employment Cost Indexes and Levels, 1975–95*, BLS Bulletin 2466. The most recent data from the Employee Benefits Survey appear in the following Bureau of Labor Statistics bulletins: *Employee Benefits in Medium and Large Firms; Employee Benefits in Small Private Establishments; and Employee Benefits in State and Local Governments.*

More detailed data on consumer and producer prices are published in the monthly periodicals, *The CPI Detailed Report* and *Producer Price Indexes*. For an overview of the CPI reflecting 1982–84 expenditure patterns, see *The Consumer Price Index: 1987 Revision*, BLS Report 736. Additional data on international prices appear in monthly news releases.

For a listing of available industry productivity indexes and their components, see *Productivity Measures for Selected Industries and Government Services*, BLS Bulletin 2461.

For additional information on international comparisons data, see *International Comparisons of Unemployment*, BLS Bulletin 1979.

Detailed data on the occupational injury and illness series are published in *Occupational Injuries and Illnesses in the United States, by Industry*, a BLS annual bulletin.

Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

n.e.c. = not elsewhere classified.
n.e.s. = not elsewhere specified.
p = preliminary. To increase the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.
r = revised. Generally, this revision reflects the availability of later data, but also may reflect other adjustments.

Comparative Indicators

(Tables 1–3)

Comparative indicators tables provide an overview and comparison of major BLS statistical series. Consequently, although many of the included series are available monthly, all measures in these comparative tables are presented quarterly and annually.

Labor market indicators include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and unemployment rates for major demographic groups based on the Current Population ("household") Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonfarm payroll data. The Employment Cost Index (compensation), by major sector and by bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and

it is not affected by employment shifts among occupations and industries.

Data on **changes in compensation, prices, and productivity** are presented in table 2. Measures of rates of change of compensation and wages from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in consumer prices for all urban consumers; producer prices by stage of processing; overall prices by stage of processing; and overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors.

Alternative measures of wage and compensation rates of change, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the series, contribute to the variation in changes among the individual measures.

Notes on the data

Definitions of each series and notes on the data are contained in later sections of these notes describing each set of data.

Employment and Unemployment Data

(Tables 1; 4–20)

Household survey data

Description of the series

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 50,000 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

Employed persons include (1) all those who worked for pay any time during the week which includes the 12th day of the month or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. A person working at more than one job is counted only in the job at which he or she worked the greatest number of hours.

Unemployed persons are those who did not work during the survey week, but were available for work except for temporary illness and had looked for jobs within the preceding 4 weeks. Persons who did not look for work because they were on layoff are also counted among the unemployed. **The unemployment rate** represents the number unemployed as a percent of the civilian labor force.

The **civilian labor force** consists of all employed or unemployed persons in the civilian noninstitutional population. Persons **not in the labor force** are those not classified as employed or unemployed. This group includes discouraged workers, defined as persons who want and are available for a job and who have looked for work sometime in the the past 12 months (or since the end of their last job if they held one within the past 12 months), but are not currently looking, because they believe there are no jobs available or there are none for which they would qualify. The **civilian noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy. The **civilian labor force participation** rate is the proportion of the civilian noninstitutional population that is in the labor force. The **employment-population ratio** is employment as a percent of the civilian noninstitutional population.

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the intercensal years. These adjustments affect the comparability of historical data. A description of these adjustments and their effect on the various data series appears in the Explanatory Notes of *Employment and Earnings.*

Labor force data in tables 1 and 4–9 are seasonally adjusted. Since January 1980, national labor force data have been seasonally adjusted with a procedure called X-11 ARIMA which was developed at Statistics Canada as an extension of the standard X-11 method previously used by BLS. A detailed description of the procedure appears in the X-11 *ARIMA Seasonal Adjustment Method,* by Estela Bee Dagum (Statistics Canada, Catalogue No. 12-564E, January 1983).

At the end of each calendar year, seasonally adjusted data for the previous 5 years usually are revised, and projected seasonal adjustment factors are calculated for use during the January–June period. Because of the revised population controls introduced into the CPS in February 1996, seasonally adjusted data back to 1990 were revised. In July, new seasonal adjustment factors, which incorporate the experience through June, are produced for the July–December period, but no revisions are made in the historical data.

FOR ADDITIONAL INFORMATION on national household survey data, contact the Division of Labor Force Statistics: (202) 606–6378.

Revisions to household data

Data relating to 1994 and subsequent years are not directly comparable with data for 1993 and earlier years because of the introduction of a major redesign of the survey questionnaire and collection methodology. (See the February 1994 issue of *Employment and Earnings*, a monthly publication of the Bureau of Labor Statistics.) Moreover, data for 1990 forward incorporate 1990 census-based population controls, adjusted for the estimated undercount.

Seasonally adjusted data back to 1990 were revised in February 1996. Additional information on the revisions appears in the March 1996 issue of *Employment and Earnings.*

Establishment survey data

Description of the series

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by about 390,000 establishments representing all industries except agriculture. Industries are classified in accordance with the 1987 *Standard Industrial Classification (SIC) Manual.* In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

Definitions

An **establishment** is an economic unit which produces goods or services (such as a factory or store) at a single location and is en-

gaged in one type of economic activity.

Employed persons are all persons who received pay (including holiday and sick pay) for any part of the payroll period including the 12th day of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

Production workers in manufacturing include working supervisors and nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 11–16 include production workers in manufacturing and mining; construction workers in construction; and nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

Hours represent the average weekly hours of production or nonsupervisory workers for which pay was received, and are different from standard or scheduled hours. **Overtime hours** represent the portion of average weekly hours which was in excess of regular hours and for which overtime premiums were paid.

The **Diffusion Index** represents the percent of industries in which employment was rising over the indicated period, plus one-half of the industries with unchanged employment; 50 percent indicates an equal balance between industries with increasing and decreasing employment. In line with Bureau practice, data for the 1-, 3-, and 6-month spans are seasonally adjusted, while those for the 12-month span are unadjusted. Data are centered within the span. Table 17 provides an index on private nonfarm employment based on 356 industries, and a manufacturing index based on 139 industries. These indexes are useful for measuring the dispersion of economic gains or losses and are also economic indicators.

Notes on the data

Establishment survey data are annually adjusted to comprehensive counts of employment (called "benchmarks"). The latest adjustment, which incorporated March 1995 benchmarks, was made with the release of May 1996 data, published in the July 1996 issue of the *Review.* Coincident with the benchmark adjustment, seasonally adjusted data were revised back to 1988 to reflect updated seasonal factors and new seasonal adjustment procedures. Unadjusted data from April 1995 forward and seasonally adjusted data from January 1992 forward are subject to revision in future benchmarks.

Revisions in State data (table 11) occurred with the publication of January 1996 data.

Beginning in June 1996, the BLS uses the X-12 ARIMA methodology to seasonally adjust establishment survey data. This procedure, developed by the Bureau of the Census, controls for the effect of varying survey intervals (also known as the 4- versus 5-week effect), thereby providing improved measurement of over-the-month changes and underlying economic trends. Revisions of data, usually for the most recent 5-year period, are made once a year coincident with the benchmark revisions.

In the establishment survey, estimates for the most recent 2 months are based on incomplete returns and are published as preliminary in the tables (12–17 in the *Review).* When all returns have been received, the estimates are revised and published as "final" (prior to any benchmark revisions) in the third month of their appearance. Thus, December data are published as preliminary in January and February and as final in March. For the same reasons, quarterly establishment data (table 1) are preliminary for the first 2 months of publication and final in the third month. Thus, fourth-quarter data are published as preliminary in January and February and as final in March.

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review,* December 1969, pp. 9–20.

FOR ADDITIONAL INFORMATION on establishment survey data, contact the Division of Monthly Industry Employment Statistics: (202) 606–6555.

Unemployment data by State

Description of the series

Data presented in this section are obtained from the Local Area Unemployment Statistics (LAUS) program, which is conducted in cooperation with State employment security agencies.

Monthly estimates of the labor force, employment, and unemployment for States and sub-State areas are a key indicator of local economic conditions, and form the basis for determining the eligibility of an area for benefits under Federal economic assistance programs such as the Job Training Partnership Act. Seasonally adjusted unemployment rates are presented in table 10. Insofar as possible, the concepts and definitions underlying these data are those used in the national estimates obtained from the CPS.

Notes on the data

Data refer to State of residence. Monthly data for all States and the District of Columbia are derived using standardized procedures established by BLS. Once a year, estimates are revised to new population controls, usually with publication of January estimates, and benchmarked to annual average CPS levels.

FOR ADDITIONAL INFORMATION on data in this series, call (202) 606–6392 (table 10) or (202) 606–6589 (table 11).

Compensation and Wage Data

(Tables 1–3; 21–26)

COMPENSATION AND WAGE DATA are gathered by the Bureau from business establishments, State and local governments, labor unions, collective bargaining agreements on file with the Bureau, and secondary sources.

Employment Cost Index

Description of the series

The **Employment Cost Index** (ECI) is a quarterly measure of the rate of change in compensation per hour worked and includes wages, salaries, and employer costs of employee benefits. It uses a fixed market basket of labor—similar in concept to the Consumer Price Index's fixed market basket of goods and services—to measure change over time in employer costs of employing labor.

Statistical series on total compensation costs, on wages and salaries, and on benefit costs are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. The total compensation costs and wages and salaries series are also available for State and local government workers and for the civilian nonfarm economy, which consists of private industry and State and local government workers combined. Federal workers are excluded.

The Employment Cost Index probability sample consists of about 4,400 private nonfarm establishments providing about 23,000 occupational observations and 1,000 State and local government establishments provid-

ing 6,000 occupational observations selected to represent total employment in each sector. On average, each reporting unit provides wage and compensation information on five well-specified occupations. Data are collected each quarter for the pay period including the 12th day of March, June, September, and December.

Beginning with June 1986 data, fixed employment weights from the 1980 Census of Population are used each quarter to calculate the civilian and private indexes and the index for State and local governments. (Prior to June 1986, the employment weights are from the 1970 Census of Population.) These fixed weights, also used to derive all of the industry and occupation series indexes, ensure that changes in these indexes reflect only changes in compensation, not employment shifts among industries or occupations with different levels of wages and compensation. For the bargaining status, region, and metropolitan/nonmetropolitan area series, however, employment data by industry and occupation are not available from the census. Instead, the 1980 employment weights are reallocated within these series each quarter based on the current sample. Therefore, these indexes are not strictly comparable to those for the aggregate, industry, and occupation series.

Definitions

Total compensation costs include wages, salaries, and the employer's costs for employee benefits.

Wages and salaries consist of earnings before payroll deductions, including production bonuses, incentive earnings, commissions, and cost-of-living adjustments.

Benefits include the cost to employers for paid leave, supplemental pay (including nonproduction bonuses), insurance, retirement and savings plans, and legally required benefits (such as Social Security, workers' compensation, and unemployment insurance).

Excluded from wages and salaries and employee benefits are such items as payment-in-kind, free room and board, and tips.

Notes on the data

The Employment Cost Index for changes in wages and salaries in the private nonfarm economy was published beginning in 1975. Changes in total compensation cost—wages and salaries and benefits combined—were published beginning in 1980. The series of changes in wages and salaries and for total compensation in the State and local government sector and in the civilian nonfarm economy (excluding Federal employees) were published beginning in 1981. Historical indexes (June 1981 = 100) of the quarterly rates of change are presented in the March issue of the BLS quarterly, *Compensation and Working Conditions.*

FOR ADDITIONAL INFORMATION on the Employment Cost Index, contact the Division of Employment Cost Trends: (202) 606–6199.

Employee Benefits Survey

Description of the series

Employee benefits data are obtained from the Employee Benefits Survey, an annual survey of the incidence and provisions of selected benefits provided by employers. The survey collects data from a sample of approximately 6,000 private sector and State and local government establishments. The data are presented as a percentage of employees who participate in a certain benefit, or as an average benefit provision (for example, the average number of paid holidays provided to employees per year). Selected data from the survey are presented in table 25.

The survey covers paid leave benefits such as lunch and rest periods, holidays and vacations, and personal, funeral, jury duty, military, parental, and sick leave; sickness and accident, long-term disability, and life insurance; medical, dental, and vision care plans; defined benefit and defined contribution plans; flexible benefits plans; reimbursement accounts; and unpaid parental leave.

Also, data are tabulated on the incidence of several other benefits, such as severance pay, child-care assistance, wellness programs, and employee assistance programs.

Definitions

Employer-provided benefits are benefits that are financed either wholly or partly by the employer. They may be sponsored by a union or other third party, as long as there is some employer financing. However, some benefits that are fully paid for by the employee also are included. For example, long-term care insurance and postretirement life insurance paid entirely by the employee are included because the guarantee of insurability and availability at group premium rates are considered a benefit.

Participants are workers who are covered by a benefit, whether or not they use that benefit. If the benefit plan is financed wholly by employers and requires employees to complete a minimum length of service for eligibility, the workers are considered participants whether or not they have met the requirement. If workers are required to contribute towards the cost of a plan, they are considered participants only if they elect the plan and agree to make the required contributions.

Defined benefit pension plans use predetermined formulas to calculate a retirement benefit, and obligate the employer to provide those benefits. Benefits are generally based on salary, years of service, or both.

Defined contribution plans generally specify the level of employer and employee contributions to a plan, but not the formula for determining eventual benefits. Instead, individual accounts are set up for participants, and benefits are based on amounts credited to these accounts.

Tax-deferred savings plans are a type of defined contribution plan that allow participants to contribute a portion of their salary to an employer-sponsored plan and defer income taxes until withdrawal.

Flexible benefit plans allow employees to choose among several benefits, such as life insurance, medical care, and vacation days, and among several levels of care within a given benefit.

Notes on the data

Surveys of employees in medium and large establishments conducted over the 1979–86 period included establishments that employed at least 50, 100, or 250 workers, depending on the industry (most service industries were excluded). The survey conducted in 1987 covered only State and local governments with 50 or more employees. The surveys conducted in 1988 and 1989 included medium and large establishments with 100 workers or more in private industries. All surveys conducted over the 1979–89 period excluded establishments in Alaska and Hawaii, as well as part-time employees.

Beginning in 1990, surveys of State and local governments and small establishments are conducted in even-numbered years and surveys of medium and large establishments are conducted in odd-numbered years. The small establishment survey includes all private nonfarm establishments with fewer than 100 workers, while the State and local government survey includes all governments, regardless of the number of workers. All three surveys include full- and part-time workers, and workers in all 50 States and the District of Columbia.

FOR ADDITIONAL INFORMATION on the Employee Benefits Survey, contact the Division of Occupational Pay and Employee Benefit Levels: (202) 606–6222.

Work stoppages

Description of the series

Data on work stoppages measure the number and duration of major strikes or lockouts (involving 1,000 workers or more) occurring during the month (or year), the number of workers involved, and the amount of time lost because of stoppage.

Data are largely from newspaper accounts and cover only establishments directly involved in a stoppage. They do not measure the indirect or secondary effect of stoppages on other establishments whose employees are idle owing to material shortages or lack of service.

Definitions

Number of stoppages: The number of strikes and lockouts involving 1,000 workers or more and lasting a full shift or longer.

Workers involved: The number of workers directly involved in the stoppage.

Number of days idle: The aggregate number of workdays lost by workers involved in the stoppages.

Days of idleness as a percent of estimated working time: Aggregate workdays lost as a percent of the aggregate number of standard workdays in the period multiplied by total employment in the period.

Notes on the data

This series is not comparable with the one terminated in 1981 that covered strikes involving six workers or more.

FOR ADDITIONAL INFORMATION on work stoppages data, contact the Division of Developments in Labor–Management Relations: (202) 606–6275.

Price Data

(Tables 2; 27–37)

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a base period—1982 = 100 for many Producer Price Indexes, 1982–84 = 100 for many Consumer Price Indexes (unless otherwise noted), and 1990 = 100 for International Price Indexes.

Consumer Price Indexes

Description of the series

The **Consumer Price Index** (CPI) is a measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The CPI is calculated monthly for two population groups, one consisting only of urban households whose primary source of income is derived from the employment of wage earners and clerical workers, and the other consisting of all urban households. The wage earner index (CPI-W) is a continuation of the historic index that was introduced well over a half-century ago for use in wage negotiations. As new uses were developed for the CPI in recent years, the need for a broader and more representative index became apparent. The all-urban consumer index (CPI-U), introduced in 1978, is representative of the 1982–84 buying habits of about 80 percent of the noninstitutional population of the United States at that time, compared with 32 percent represented in the CPI-W. In addition to wage earners and clerical workers, the CPI-U covers professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items are kept essentially unchanged between major revisions so that only price changes will be measured. All taxes directly associated with the purchase and use of items are included in the index.

Data collected from more than 19,000 retail establishments and 57,000 housing units in 85 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 15 major urban centers are presented in table 28. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

Notes on the data

In January 1983, the Bureau changed the way in which homeownership costs are meaured for the CPI-U. A rental equivalence method replaced the asset-price approach to homeownership costs for that series. In January 1985, the same change was made in the CPI-W. The central purpose of the change was to separate shelter costs from the investment component of home-ownership so that the index would reflect only the cost of shelter services provided by owner-occupied homes. An updated CPI-U and CPI-W were introduced with release of the January 1987 data.

FOR ADDITIONAL INFORMATION on consumer prices, contact the Division of Consumer Prices and Price Indexes: (202) 606–7000.

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) measure average changes in prices received by domestic producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,200 commodities and about 80,000 quotations per month, selected to represent the movement of prices of all commodities produced in the manufacturing; agriculture, forestry, and fishing; mining; and gas and electricity and public utilities sectors. The stage-of-processing structure of PPI organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI organizes products by similarity of end use or material composition. The industry and product structure of PPI organizes data in accordance with the Standard Industrial Classification (SIC) and the product code extension of the SIC developed by the U.S. Bureau of the Census.

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

Since January 1992, price changes for the various commodities have been averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1987. The detailed data are aggregated to obtain indexes for stage-of-processing groupings, commodity groupings, durability-of-product groupings, and a number of special composite groups. All Producer Price Index data are subject to revision 4 months after original publication.

FOR ADDITIONAL INFORMATION on producer prices, contact the Division of Industrial Prices and Price Indexes: (202) 606–7705.

International PriceIndexes

Description of the series

The **International Price Program** produces monthly and quarterly export and import price indexes for nonmilitary goods traded between the United States and the rest of the world. The export price index provides a measure of price change for all products sold

by U.S. residents to foreign buyers. ("Residents" is defined as in the national income accounts; it includes corporations, businesses, and individuals, but does not require the organizations to be U.S. owned nor the individuals to have U.S. citizenship.) The import price index provides a measure of price change for goods purchased from other countries by U.S. residents.

The product universe for both the import and export indexes includes raw materials, agricultural products, semifinished manufactures, and finished manufactures, including both capital and consumer goods. Price data for these items are collected primarily by mail questionnaire. In nearly all cases, the data are collected directly from the exporter or importer, although in a few cases, prices are obtained from other sources.

To the extent possible, the data gathered refer to prices at the U.S. border for exports and at either the foreign border or the U.S. border for imports. For nearly all products, the prices refer to transactions completed during the first week of the month. Survey respondents are asked to indicate all discounts, allowances, and rebates applicable to the reported prices, so that the price used in the calculation of the indexes is the actual price for which the product was bought or sold.

In addition to general indexes of prices for U.S. exports and imports, indexes are also published for detailed product categories of exports and imports. These categories are defined according to the five-digit level of detail for the Bureau of Economic Analysis End-use Classification (SITC), and the four-digit level of detail for the Harmonized System. Aggregate import indexes by country or region of origin are also available.

BLS publishes indexes for selected categories of internationally traded services, calculated on an international basis and on a balance-of-payments basis.

Notes on the data

The export and import price indexes are weighted indexes of the Laspeyres type. Price relatives are assigned equal importance within each harmonized group and are then aggregated to the higher level. The values assigned to each weight category are based on trade value figures compiled by the Bureau of the Census. The trade weights currently used to compute both indexes relate to 1990.

Because a price index depends on the same items being priced from period to period, it is necessary to recognize when a product's specifications or terms of transaction have been modified. For this reason, the Bureau's questionnaire requests detailed descriptions of the physical and functional characteristics of the products being priced, as well as information on the number of units bought or sold, discounts, credit terms, packaging, class of buyer or seller, and so forth. When there are changes in either the specifications or terms of transaction of a product, the dollar value of each change is deleted from the total price change to obtain the "pure" change. Once this value is determined, a linking procedure is employed which allows for the continued repricing of the item.

For the export price indexes, the preferred pricing is f.a.s. (free alongside ship) U.S. port of exportation. When firms report export prices f.o.b. (free on board), production point information is collected which enables the Bureau to calculate a shipment cost to the port of exportation. An attempt is made to collect two prices for imports. The first is the import price f.o.b. at the foreign port of exportation, which is consistent with the basis for valuation of imports in the national accounts. The second is the import price c.i.f.(costs, insurance, and freight) at the U.S. port of importation, which also includes the other costs associated with bringing the product to the U.S. border. It does not, however, include duty charges. For a given product, only one price basis series is used in the construction of an index.

FOR ADDITIONAL INFORMATION on international prices, contact the Division of International Prices: (202) 606–7155.

Productivity Data

(Tables 2; 38–41)

Business sector and major sectors

Description of the series

The productivity measures relate real output to real input. As such, they encompass a family of measures which include single-factor input measures, such as output per unit of labor input (output per hour) or output per unit of capital input, as well as measures of multifactor productivity (output per unit of combined labor and capital inputs). The Bureau indexes show the change in output relative to changes in the various inputs. The measures cover the business, nonfarm business, manufacturing, and nonfinancial corporate sectors.

Corresponding indexes of hourly compensation, unit labor costs, unit nonlabor payments, and prices are also provided.

Definitions

Output per hour of all persons (labor productivity) is the quantity of goods and services produced per hour of labor input. **Output per unit of capital services** (capital productivity) is the quantity of goods and services produced per unit of capital services input. **Multifactor productivity** is the quantity of goods and services produced per unit of combined unit of labor and capital inputs.

Compensation per hour is total compensation divided by hours at work. Total compensation equals the wages and salaries of employees plus employers' contributions for social insurance and private benefit plans, plus an estimate of these payments for the self-employed (except for nonfinancial corporations in which there are no self-employed). **Real compensation per hour** is compensation per hour deflated by the change in the Consumer Price Index for All Urban Consumers.

Unit labor costs are the labor compensation costs expended in the production of a unit of output and are derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current-dollar value of output and dividing by output. **Unit nonlabor costs** contain all the components of unit nonlabor payments except unit profits.

Unit profits include corporate profits with inventory valuation and capital consumption adjustments per unit of output.

Hours of all persons are the total hours at work of payroll workers, self-employed persons, and unpaid family workers.

Labor inputs are hours of all persons adjusted for the effects of changes in the education and experience of the labor force.

Capital services are the flow of services from the capital stock used in production. It is developed from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset.

Combined units of labor and capital inputs are derived by combining changes in labor and capital input with weights which represent each component's share of total output. The indexes for capital services, labor inputs, and combined units of labor and capital are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

Notes on the data

Business sector output is an annually-weighted index constructed by excluding from real gross domestic product (GDP) the following outputs: general government, nonprofit institutions, paid employees of private households, and the rental value of owner-occupied dwellings. Nonfarm business also excludes farming. Private business and private nonfarm business

further exclude government enterprises. The measures are supplied by the U.S. Department of Commerce's Bureau of Economic Analysis. Annual estimates of manufacturing sectoral output are produced by the Bureau of Labor Statistics. Quarterly manufacturing output indexes from the Federal Reserve Board are adjusted to these annual output measures by the BLS. Compensation data are developed from data of the Bureau of Economic Analysis and the Bureau of Labor Statistics. Hours data are developed from data of the Bureau of Labor Statistics.

The productivity and associated cost measures in tables 38–41 describe the relationship between output in real terms and the labor and capital inputs involved in its production. They show the changes from period to period in the amount of goods and services produced per unit of input.

Although these measures relate output to hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; shifts in the composition of the labor force; capital investment; level of output; changes in the utilization of capacity, energy, material, and research and development; the organization of production; managerial skill; and characteristics and efforts of the work force.

FOR ADDITIONAL INFORMATION on this productivity series, contact the Division of Productivity Research: (202) 606–5606.

Industry productivity measures

Description of the series

The BLS industry productivity data supplement the measures for the business economy and major sectors with annual measures of labor productivity for selected industries at the three- and four-digit levels of the Standard Industrial Classification system. The industry measures differ in methodology and data sources from the productivity measures for the major sectors because the industry measures are developed independently of the National Income and Product Accounts framework used for the major sector measures.

Definitions

Output per employee hour is derived by dividing an index of industry output by an index of aggregate hours of all employees. Output indexes are based on quantifiable units of products or services, or both, combined with value-share weights. Whenever possible, physical quantities are used as the unit of measurement for output. If quantity data are not available for a given industry, data on the constant-dollar value of production are used.

The **labor input** series consist of the hours of all employees (production and nonproduction workers), the hours of all persons (paid employees, partners, proprietors, and unpaid family workers), or the number of employees, depending upon the industry.

Notes on the data

The industry measures are compiled from data produced by the Bureau of Labor Statistics, the Departments of Commerce, Interior, and Agriculture, the Federal Reserve Board, regulatory agencies, trade associations, and other sources.

For most industries, the productivity indexes refer to the output per hour of all employees. For some transportation industries, only indexes of output per employee are prepared. For some trade and service industries, indexes of output per hour of all persons (including self-employed) are constructed.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Industry Productivity Studies: (202) 606–5618.

International Comparisons

(Tables 42–44)

Labor force and unemployment

Description of the series

Tables 42 and 43 present comparative measures of the labor force, employment, and unemployment—approximating U.S. concepts—for the United States, Canada, Australia, Japan, and several European countries. The unemployment statistics (and, to a lesser extent, employment statistics) published by other industrial countries are not, in most cases, comparable to U.S. unemployment statistics. Therefore, the Bureau adjusts the figures for selected countries, where necessary, for all known major definitional differences. Although precise comparability may not be achieved, these adjusted figures provide a better basis for international comparisons than the figures regularly published by each country.

Definitions

For the principal U.S. definitions of the **labor force**, **employment**, and **unemployment**, see the Notes section on Employment and Unemployment Data: Household survey data.

Notes on the data

The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country, rather than to the U.S. standard of 16 years of age and older. Therefore, the adjusted statistics relate to the population aged 16 and older in France, Sweden, and the United Kingdom; 15 and older in Canada, Australia, Japan, Germany, Italy from 1993 onward, and the Netherlands; and 14 and older in Italy prior to 1993. The institutional population is included in the denominator of the labor force participation rates and employment-population ratios for Japan and Germany; it is excluded for the United States and the other countries.

In the U.S. labor force survey, persons on layoff who are awaiting recall to their jobs are classified as unemployed. European and Japanese layoff practices are quite different in nature from those in the United States; therefore, strict application of the U.S. definition has not been made on this point. For further information, see *Monthly Labor Review*, December 1981, pp. 8–11.

The figures for one or more recent years for France, Germany, Italy, the Netherlands, and the United Kingdom are calculated using adjustment factors based on labor force surveys for earlier years and are considered preliminary. The recent-year measures for these countries, therefore, are subject to revision whenever data from more current labor force surveys become available.

There are breaks in the data series for the United States (1990, 1994), France (1992), Italy (1991, 1993), the Netherlands (1988), and Sweden (1987).

For the United States, the break in series reflects a major redesign of the labor force survey questionnaire and collection methodology introduced in January 1994. Revised population estimates based on the 1990 Census, adjusted for the estimated undercount, also were incorporated. In 1996, previously published data for the 1990–1993 period were revised to reflect the 1990 census-based population controls, adjusted for the undercount. Therefore, data for 1994 onward are not directly comparable with data for 1993 and earlier years because of the redesign, and data for 1990 onward are not directly comparable with data for 1989 and earlier years because of the introduction of the 1990 census-based population controls, adjusted for the undercount. See the Notes section on Employment and Unemployment Data of this *Review*.

For France, the 1992 break reflects the substitution of standardized European Union Statistical Office (EUROSTAT) unemployment statistics for the unemployment data estimated according to the International Labor Office (ILO) definition and published in the Organization for Economic Cooperation and

Development (OECD) annual yearbook and quarterly update. This change was made because the EUROSTAT data are more up-to-date than the OECD figures. Also, since 1992, the EUROSTAT definitions are closer to the U.S. definitions than they were in prior years. The impact of this revision was to lower the unemployment rate by 0.1 percentage point in 1992 and 1993, by 0.4 percentage point in 1994, and 0.6 percentage point in 1995.

For Italy, the 1991 break reflects a revision in the method of weighting sample data. The impact was to increase the unemployment rate by approximately 0.3 percentage point, from 6.6 to 6.9 percent in 1991.

In October 1992, the survey methodology was revised and the definition of unemployment was changed to include only those who were actively looking for a job within the 30 days preceding the survey and who were available for work. In addition, the lower age limit for the labor force was raised from 14 to 15 years. (Prior to these changes, BLS adjusted Italy's published unemployment rate downward by excluding from the unemployed those persons who had not actively sought work in the past 30 days.) The break in the series also reflects the incorporation of the 1991 population census results. The impact of these changes was to raise Italy's adjusted unemployment rate by approximately 1.2 percentage points, from 8.3 to 9.5 percent in fourth-quarter 1992. These changes did not affect employment significantly, except in 1993. Estimates by the Italian Statistical Office indicate that employment declined by about 3 percent in 1993, rather than the nearly 4 percent indicated by the data shown in table 43. This difference is attributable mainly to the incorporation of the 1991 population benchmarks in the 1993 data. Data for earlier years have not been adjusted to incorporate the 1991 census results.

For the Netherlands, a new survey questionnaire was introduced in 1992 that allowed for a closer application of ILO guidelines. EUROSTAT has revised the Dutch series back to 1988 based on the 1992 changes. The 1988 revised unemployment rate is 7.6 percent; the previous estimate for the same year was 9.3 percent.

There have been two breaks in series in the Swedish labor force survey, in 1987 and 1993. Adjustments have been made for the 1993 break back to 1987. In 1987, a new questionnaire was introduced. Questions regarding current availability were added and the period of active workseeking was reduced from 60 days to 4 weeks. These changes lowered Sweden's 1987 unemployment rate by 0.4 percentage point, from 2.3 to 1.9 percent. In 1993, the measurement period for the labor force survey was changed to represent all 52 weeks of the year rather than one week each month and a new adjustment for population totals was introduced. The impact was to raise the unemployment rate by approximately 0.5 percentage point, from 7.6 to 8.1 percent. Statistics Sweden revised its labor force survey data for 1987–1992 to take into account the break in 1993. The adjustment raised the Swedish unemployment rate by 0.2 percentage point in 1987 and gradually rose to 0.5 percentage point in 1992.

Beginning with 1987, BLS has adjusted the Swedish data to classify students who also sought work as unemployed. The impact of this change was to increase the adjusted unemployment rate by 0.1 percentage point in 1987 and by 1.8 percentage points in 1994, when unemployment was higher. By 1994, the adjusted unemployment rate had risen from 7.8 to 9.6 percent due to the adjustment to include students.

The net effect of the 1987 and 1993 changes and the BLS adjustment for students seeking work lowered Sweden's 1987 unemployment rate from 2.3 to 2.2 percent.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Manufacturing productivity and labor costs

Description of the series

Table 44 presents comparative measures of manufacturing labor productivity (output per hour), hourly compensation costs, and unit labor costs for the United States, Canada, Japan, and nine European countries. These measures are limited to trend comparisons—that is, intercountry series of changes over time—rather than level comparisons because reliable international comparisons of the levels of manufacturing output are unavailable. BLS constructs these comparative indexes from three basic aggregative measures—output, total labor hours, and total compensation. The hours and compensation measures refer to all employed persons, including self-empoyed persons and unpaid family workers, in the United States, Canada, Japan, France, Germany, Norway, and Sweden, and to all employees (wage and salary earners) in the other countries. The figures for Canada are the official measures prepared by Statistics Canada.

Definitions

Output, in general, refers to value added in manufacturing (gross product originating) in constant prices from the national accounts of each country. However, output for Japan prior to 1970 and the Netherlands from 1969 to 1977 are indexes of industrial production. The national accounts measures for the United Kingdom are essentially identical to its indexes of industrial production. While methods of deriving national accounts measures differ substantially from country to country, the use of different procedures does not, in it-self, connote lack of comparability—rather, it reflects differences among countries in the availability and reliability of underlying data series.

The price base years used to measure real output and the frequency and method of changing price weights differ among the countries, and this can lead to differences in real output growth rates. The real manufacturing output data currently being used for the United States are 1987 fixed-price-weighted measures; they are available only from 1977 forward. With the exception of Japan, which uses fixed-weighted measures for long periods, the foreign countries covered in BLS series link fixed-weighted measures covering various periods, although the methods used differ. The measures for Norway for 1987–92 are annual chain-linked measures based on relative prices of the preceding year.

Hours refer to hours worked in all countries. The measures are developed from statistics of manufacturing employment and average hours. The series used for France (from 1970 forward), Norway, and Sweden are official series published with the national accounts. Where official total hours series are not available, the measures are developed by BLS using employment figures published with the national accounts, or other comprehensive employment series, and estimates of annual hours worked. For Germany, BLS uses estimates of average hours worked developed by a research institute connected with the Ministry of Labor for use with the national accounts employment figures. For the other countries, BLS constructs its own estimates of average hours.

Compensation (labor cost) includes all payments in cash or kind made directly to employees plus employer expenditures for legally required insurance programs and contractual and private benefit plans. For France and Sweden, compensation is increased to account for other significant payroll taxes, even if they are not for the direct benefit of workers, because such taxes are regarded as labor costs. For the United Kingdom, compensation is reduced for the years 1967–91 to account for employment susidies. However, compensation does not include all items of labor costs. The costs of recruitment, employee training, and plant facilities and services—such as cafeterias and medical clinics—are not covered because data are not available for most countries. The compensation measures are from the national accounts, except those for Belgium, which are developed by BLS using statistics on employment, average hours,

and hourly compensation. Self-employed workers are included in the all employed persons measures assuming that their hourly compensation is equal to the average for wage and salary employees.

Notes on the data

In general, the measures relate to total manufacturing as defined by the International Standard Industrial Classification. However, the measures for France and Italy (beginning 1970), refer to mining and manufacturing less energy-related products; the measures for Denmark include mining and exclude manufacturing handicrafts from 1960 to 1966; and the measures for the Netherlands exclude petroleum refining and include coal mining from 1969 to 1976.

The figures for one or more recent years may be based on current indicators of manufacturing output (such as industrial production indexes), employment, average hours, and hourly compensation and are considered preliminary until the national accounts and other statistics used for the long-term measures becomes available.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Occupational Injury and Illness Data

(Table 45)

Description of the series

The Annual Survey of Occupational Injuries and Illnesses is designed to collect data on injuries and illnesses based on records which employers in the following industries main-tain under the Occupational Safety and Health Act of 1970: agriculture, forestry, and fishing; oil and gas extraction; construction; manufacturing; transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. Ex-cluded from the survey are self-employed individuals, farmers with fewer than 11 employees, employers regulated by other Federal safety and health laws, and Federal, State, and local government agencies.

Because the survey is a Federal-State cooperative program and the data must meet the needs of participating State agencies, an independent sample is selected for each State. The sample is selected to represent all private industries in the States and territories. The sample size for the survey is dependent upon (1) the characteristics for which estimates are needed; (2) the industries for which estimates are desired; (3) the characteristics of the population being sampled; (4) the target reliability of the estimates; and (5) the survey design employed.

While there are many characteristics upon which the sample design could be based, the total recorded case incidence rate is used because it is one of the most important characteristics and the least variable; therefore, it requires the smallest sample size.

The survey is based on stratified random sampling with a Neyman allocation and a ratio estimator. The characteristics used to stratify the establishments are the Standard Industrial Classification (SIC) code and size of employment.

Definitions

Recordable occupational injuries and illnesses are: (1) occupational deaths, regardless of the time between injury and death, or the length of the illness; or (2) nonfatal occupational illnesses; or (3) nonfatal occupational injuries which involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment (other than first aid).

Occupational injury is any injury, such as a cut, fracture, sprain, amputation, and so forth, which results from a work accident or from exposure involving a single incident in the work environment.

Occupational illness is an abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or disease which may be caused by inhalation, absorption, ingestion, or direct contact.

Lost workday cases are cases which involve days away from work, or days of restricted work activity, or both.

Lost workday cases involving restricted work activity are those cases which result in restricted work activity only.

Lost workdays away from work are the number of workdays (consecutive or not) on which the employee would have worked but could not because of occupational injury or illness.

Lost workdays—restricted work activity are the number of workdays (consecutive or not) on which, because of injury or illness: (1) the employee was assigned to another job on a temporary basis; (2) the employee worked at a permanent job less than full time; or (3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

The number of days away from work or days of restricted work activity does not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work.

Incidence rates represent the number of injuries and/or illnesses or lost workdays per 100 full-time workers.

Notes on thedata

Estimates are made for industries and employment-size classes and for severity classification: fatalities, lost workday cases, and nonfatal cases without lost workdays. Lost workday cases are separated into those in which the employee would have worked but could not and those in which work activity was restricted. Estimates of the number of cases and the number of days lost are made for both categories.

Most of the estimates are in the form of incidence rates, defined as the number of injuries and illnesses or lost workdays per 100 full-time employees. For this purpose, 200,000 employee hours represent 100 employee years (2,000 hours per employee). Full detail of the available measures is presented in the annual bulletin, *Occupational Injuries and Illnesses in the United States, by Industry.*

Comparable data for individual States are available from the BLS Office of Safety, Health, and Working Conditions.

Mining and railroad data are furnished to BLS by the Mine Safety and Health Administration and the Federal Railroad Administration. Data from these organizations are included in BLS and State publications. Federal employees experience is compiled and published by the Occupational Safety and Health Administration. Data on State and local government employees are collected by about half of the States and territories; these data are not compiled nationally.

The Supplementary Data System provides detailed information describing various factors associated with work-related injuries and illnesses. These data are obtained from information reported by employers to State workers' compensation agencies. The Work Injury Report program examines selected types of accidents through an employee survey which focuses on the circumstances surrounding the injury. These data are available from the BLS Office of Safety, Health, and Working Conditions.

The definitions of occupational injuries and illnesses and lost workdays are from *Recordkeeping Requirements under the Occupational Safety and Health Act of 1970.*

FOR ADDITIONAL INFORMATION on occupational injuries and illnesses, contact the Division of Safety and Health Statistics: (202) 606–6166.

1. Labor market indicators

Selected indicators	1994	1995	1994		1995				1996	
			III	IV	I	II	III	IV	I	II
Employment data										
Employment status of the civilian noninstitutionalized population (household survey):[1]										
Labor force participation rate	66.6	66.6	66.5	66.7	66.8	66.7	66.6	66.4	66.7	66.7
Employment-population ratio	62.5	62.9	62.5	62.9	63.1	62.9	62.8	62.8	62.9	63.1
Unemployment rate	6.1	5.6	6.0	5.6	5.5	5.7	5.6	5.5	5.6	5.4
Men	6.2	5.6	6.0	5.6	5.5	5.6	5.6	5.6	5.7	5.5
16 to 24 years	13.2	12.5	13.0	12.1	12.0	12.2	12.8	12.9	13.1	12.7
25 years and over	4.8	4.3	4.7	4.4	4.2	4.4	4.3	4.2	4.3	4.1
Women	6.0	5.6	5.9	5.6	5.6	5.7	5.7	5.5	5.6	5.4
16 to 24 years	11.6	11.6	11.4	11.1	11.3	11.5	12.1	11.6	12.0	11.0
25 years and over	4.9	4.4	4.8	4.5	4.4	4.5	4.4	4.3	4.3	4.3
Employment, nonfarm (payroll data), in thousands:[1]										
Total	114,172	117,203	114,690	115,611	116,484	116,956	117,441	117,928	118,462	119,272
Private sector	95,044	97,892	95,518	96,388	97,222	97,663	98,103	98,587	99,097	99,837
Goods-producing	23,908	24,206	23,993	24,156	24,277	24,235	24,175	24,148	24,187	24,249
Manufacturing	18,321	18,468	18,374	18,475	18,554	18,522	18,434	18,366	18,308	18,294
Service-producing	90,264	92,997	90,697	91,455	92,207	92,721	93,266	93,780	94,275	95,024
Average hours:										
Private sector	34.7	34.5	34.6	34.7	34.6	34.4	34.4	34.4	34.3	34.4
Manufacturing	42.0	41.6	42.0	42.1	42.0	41.5	41.4	41.4	40.9	41.7
Overtime	4.7	4.4	4.7	4.7	4.7	4.3	4.3	4.3	4.2	4.6
Employment Cost Index										
Percent change in the ECI, compensation:										
All workers (excluding farm, household and Federal workers)	3.0	2.7	1.0	.4	.8	.6	.8	.5	.9	.7
Private industry workers	3.1	2.6	.8	.4	.8	.7	.6	.4	.9	.9
Goods-producing[2]	3.1	2.4	.7	.3	.8	.5	.5	.6	.7	.9
Service-producing[2]	2.9	2.8	.9	.4	.9	.8	.7	.3	1.1	.8
State and local government workers	3.0	2.9	1.5	.5	.6	.4	1.4	.5	.5	.2
Workers by bargaining status (private industry):										
Union	2.7	2.8	.7	.3	.7	.6	.8	.7	.6	.9
Nonunion	3.1	2.7	.8	.4	.9	.7	.6	.4	.9	.8

[1] Quarterly data seasonally adjusted.

[2] Goods-producing industries include mining, construction, and manufacturing. Service-producing industries include all other private sector industries.

2. Annual and quarterly percent changes in compensation, prices, and productivity

Selected measures	1994	1995	1994		1995				1996	
			III	IV	I	II	III	IV	I	II
Compensation data[1,2]										
Employment Cost Index—compensation (wages, salaries, benefits):										
Civilian nonfarm	3.0	2.7	1.0	0.4	0.8	0.6	0.8	0.5	0.9	0.7
Private nonfarm	3.1	2.6	.8	.4	.8	.7	.6	.4	.9	.9
Employment Cost Index—wages and salaries:										
Civilian nonfarm	2.8	2.9	1.0	.5	.7	.7	.8	.6	1.0	.8
Private nonfarm	2.8	2.8	.8	.5	.8	.7	.7	.6	1.1	1.0
Price data[1]										
Consumer Price Index (All Urban Consumers): All items	2.7	2.5	.9	.2	1.1	.7	.5	.2	1.4	.6
Producer Price Index:										
Finished goods	1.7	2.3	.0	.5	.7	.9	-.2	.9	.8	1.2
Finished consumer goods	1.6	2.3	.2	.3	.6	1.0	-.1	.6	1.0	1.6
Capital equipment	2.0	2.2	-.5	1.2	.8	.1	-.5	1.8	.1	-.2
Intermediate materials, supplies, and components	4.4	3.3	1.6	.8	2.4	1.5	.1	-.6	-.2	1.0
Crude materials	-.5	5.5	-3.4	.8	1.8	1.1	-.9	3.4	3.8	2.8
Productivity data[3]										
Output per hour of all persons:										
Business sector	.5	.5	2.2	.6	-1.9	1.9	1.7	-.6	2.0	1.1
Nonfarm business sector	.5	.7	2.0	.9	-1.6	2.0	2.0	-1.1	1.8	.5
Nonfinancial corporations[4]	1.3	.9	-.3	1.7	-2.7	2.8	5.2	2.5	1.1	1.7

[1] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted, and the price data are not compounded.

[2] Excludes Federal and private household workers.

[3] Annual rates of change are computed by comparing annual averages. Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.

[4] Output per hour of all employees.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ending—					
	1995				1996		1995				1996	
	I	II	III	IV	I	II	I	II	III	IV	I	II
Average hourly compensation:[1]												
All persons, business sector	3.6	4.6	3.9	4.4	3.0	4.0	2.5	3.5	3.9	4.1	4.0	3.8
All persons, nonfarm business sector	3.7	4.6	4.0	4.1	3.3	3.7	2.7	3.5	4.0	4.1	4.0	3.8
Employment Cost Index—compensation:												
Civilian nonfarm[2]	.8	.6	.8	.5	.9	.7	2.9	2.9	2.7	2.7	2.8	2.9
Private nonfarm	.8	.7	.6	.4	.9	.9	2.9	2.8	2.6	2.6	2.7	2.9
Union	.7	.6	.8	.7	.6	.9	2.6	2.3	2.4	2.8	2.7	3.1
Nonunion	.9	.7	.6	.4	.9	.8	3.0	2.9	2.7	2.7	2.7	2.8
State and local governments	.6	.4	1.4	.5	.5	.2	3.1	3.1	3.0	2.9	2.8	2.6
Employment Cost Index—wages and salaries:												
Civilian nonfarm[2]	.7	.7	.8	.6	1.0	.8	3.0	3.0	2.8	2.9	3.1	3.2
Private nonfarm	.8	.7	.7	.6	1.1	1.0	2.9	2.9	2.8	2.8	3.2	3.4
Union	.6	.7	.7	.6	.5	1.1	2.8	2.6	2.4	2.6	2.5	3.0
Nonunion	.8	.8	.7	.6	1.2	.9	2.9	3.0	2.9	2.9	3.3	3.4
State and local governments	.7	.2	1.6	.6	.4	.2	3.2	3.2	3.1	3.2	2.8	2.8

[1] Seasonally adjusted.

[2] Excludes Federal and household workers.

1. Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
TOTAL															
Civilian noninstitutional population[1]	196,814	198,584	199,005	199,192	199,355	199,508	199,634	199,733	199,921	200,101	200,278	200,459	200,641	200,847	201,060
Civilian labor force	131,056	132,304	132,501	132,473	132,471	132,352	132,903	133,108	133,655	133,361	133,910	133,669	134,181	133,885	134,340
Participation rate	66.6	66.6	66.6	66.5	66.4	66.3	66.6	66.6	66.9	66.6	66.9	66.7	66.9	66.7	66.8
Employed	123,060	124,900	125,036	125,244	125,062	124,981	125,226	125,663	126,151	126,095	126,462	126,610	126,884	127,055	127,368
Employment-population ratio[2]	62.5	62.9	62.8	62.9	62.7	62.6	62.7	62.9	63.1	63.0	63.1	63.2	63.2	63.3	63.3
Unemployed	7,996	7,404	7,465	7,229	7,409	7,371	7,677	7,355	7,504	7,266	7,448	7,060	7,297	6,830	6,971
Unemployment rate	6.1	5.6	5.6	5.5	5.6	5.6	5.8	5.5	5.6	5.4	5.6	5.3	5.4	5.1	5.2
Not in the labor force	65,758	66,280	66,504	66,719	66,884	67,156	66,730	66,754	66,266	66,741	66,368	66,790	66,460	66,962	66,721
Men, 20 years and over															
Civilian noninstitutional population[1]	87,151	87,811	87,940	88,027	88,046	88,172	88,223	88,926	88,366	88,440	88,530	88,570	88,614	88,650	88,733
Civilian labor force	66,921	67,324	67,286	67,193	67,171	67,133	67,563	67,719	67,980	67,821	68,064	68,118	68,274	68,114	68,072
Participation rate	76.8	76.7	76.5	76.3	76.3	76.1	76.6	76.7	76.9	76.7	76.9	76.9	77.0	76.8	76.7
Employed	63,294	64,085	64,023	64,146	63,901	63,879	64,246	64,425	64,594	64,555	64,818	64,962	65,094	65,286	64,978
Employment-population ratio[2]	72.6	73.0	72.8	72.9	72.6	72.4	72.8	73.0	73.1	73.0	73.2	73.3	73.5	73.6	73.2
Agriculture	2,351	2,335	2,296	2,351	2,259	2,252	2,399	2,382	2,403	2,292	2,337	2,292	2,381	2,352	2,377
Nonagricultural industries	60,943	61,750	61,727	61,795	61,642	61,627	61,848	62,044	62,191	62,263	62,480	62,669	62,713	62,933	62,601
Unemployed	3,627	3,239	3,263	3,047	6,270	3,254	3,317	3,294	3,386	3,266	3,246	3,157	3,179	2,829	3,094
Unemployment rate	5.4	4.8	4.8	4.5	4.9	4.8	4.9	4.9	5.0	4.8	4.8	4.6	4.7	4.2	4.5
Women, 20 years and over															
Civilian noninstitutional population[1]	95,467	96,262	96,409	96,487	96,555	96,633	96,717	96,757	96,798	96,857	96,925	96,999	97,064	97,146	97,226
Civilian labor force	56,655	57,215	57,387	57,516	57,502	57,426	57,591	57,570	57,903	57,736	57,915	57,893	58,102	58,225	58,356
Participation rate	59.3	59.4	59.5	59.6	59.6	59.4	59.5	59.5	59.8	59.6	59.8	59.7	59.9	59.9	60.0
Employed	53,606	54,396	54,568	54,661	54,752	54,715	54,642	54,790	55,146	55,060	55,014	55,211	55,266	55,522	55,711
Employment-population ratio[2]	56.2	56.5	56.6	56.7	56.7	56.6	56.5	56.6	57.0	56.8	56.8	56.9	56.9	57.2	57.3
Agriculture	809	830	778	816	806	816	857	851	844	813	831	842	863	829	881
Nonagricultural industries	52,796	53,566	53,790	53,845	53,946	56,899	53,785	53,938	54,303	54,247	54,183	54,369	54,403	54,693	54,831
Unemployed	3,049	2,819	2,819	2,855	2,750	2,711	2,949	2,780	2,757	2,704	2,901	2,682	2,837	2,704	2,645
Unemployment rate	5.4	4.9	4.9	5.0	4.8	4.7	5.1	4.8	4.8	4.7	5.0	4.6	4.9	4.6	4.5
Both sexes, 16 to 19 years															
Civilian noninstitutional population[1]	14,196	14,511	14,657	14,678	14,754	14,703	14,694	14,719	14,757	14,805	14,823	14,890	14,963	15,051	15,101
Civilian labor force	7,481	7,765	7,828	7,764	7,798	7,793	7,749	7,729	7,772	7,776	7,932	7,658	7,805	7,545	7,911
Participation rate	52.7	53.5	53.4	52.9	52.9	53.0	52.7	52.5	52.7	52.5	53.5	51.4	52.2	50.1	52.4
Employed	6,161	6,419	6,445	6,437	6,409	6,387	6,338	6,448	6,411	6,480	6,630	6,473	6,524	6,248	6,679
Employment-population ratio[2]	43.4	44.2	44.0	43.9	43.4	43.4	43.1	43.8	43.4	43.8	44.7	43.2	43.6	41.5	44.2
Agriculture	249	275	261	267	258	257	273	286	240	263	323	248	258	240	278
Nonagricultural industries	5,912	6,144	6,184	6,170	6,151	6,130	6,065	6,161	6,171	6,217	6,308	6,189	6,266	6,008	6,401
Unemployed	1,320	1,346	1,383	1,327	1,389	1,406	1,412	1,282	1,362	1,296	1,301	1,221	1,280	1,297	1,232
Unemployment rate	17.6	17.3	17.7	17.1	17.8	18.0	18.2	16.6	17.5	16.7	16.4	15.9	16.4	17.2	15.6
White															
Civilian noninstitutional population[1]	165,555	166,914	167,200	167,327	167,441	167,545	167,669	167,757	167,853	167,973	168,098	168,222	168,345	168,489	168,639
Civilian labor force	111,082	111,950	112,113	112,147	112,023	111,987	112,198	112,747	112,970	112,613	113,109	112,941	113,076	112,832	113,316
Participation rate	67.1	67.1	67.1	67.0	66.9	66.8	66.9	67.2	67.3	67.0	67.3	67.1	67.2	67.0	67.2
Employed	105,190	106,490	106,666	106,761	106,451	106,445	106,576	107,224	107,497	107,319	107,612	107,757	107,772	107,828	108,256
Employment-population ratio[2]	63.5	63.8	63.8	63.8	63.6	63.5	63.6	63.9	64.0	63.9	64.0	64.1	64.0	64.0	64.2
Unemployed	5,892	5,459	5,447	5,386	5,572	5,542	5,623	5,502	5,473	5,294	5,497	5,184	5,304	5,004	5,060
Unemployment rate	5.3	4.9	4.9	4.8	5.0	4.9	5.0	4.9	4.8	4.7	4.9	4.6	4.7	4.4	4.5
Black															
Civilian noninstitutional population[1]	22,879	23,246	23,323	23,357	23,389	23,419	23,424	23,455	23,485	23,519	23,549	23,579	23,611	23,650	23,690
Civilian labor force	14,502	14,817	14,820	14,856	15,006	14,959	14,993	14,827	15,030	14,971	15,149	14,955	15,279	15,361	15,167
Participation rate	63.4	63.7	63.5	63.6	64.2	63.9	64.0	63.2	64.0	63.7	64.3	63.4	64.7	65.0	64.0
Employed	12,835	13,279	13,181	13,370	13,558	13,436	13,409	13,302	13,358	13,399	13,599	13,451	13,671	13,750	13,569
Employment-population ratio[2]	56.1	57.1	56.5	57.2	58.0	57.4	57.2	56.7	56.9	57.0	57.7	57.0	57.9	58.1	57.3
Unemployed	1,666	1,538	1,639	1,486	1,448	1,523	1,584	1,525	1,673	1,573	1,551	1,504	1,609	1,611	1,597
Unemployment rate	11.5	10.4	11.1	10.0	9.6	10.2	10.6	10.3	11.1	10.5	10.2	10.1	10.5	10.5	10.5

See footnotes at end of table.

4. Continued—Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Hispanic origin															
Civilian noninstitutional population[1]	18,117	18,629	18,752	18,800	18,845	18,889	18,929	18,977	19,025	19,080	19,131	19,184	19,238	19,292	19,346
Civilian labor force	11,975	12,267	12,369	12,410	12,347	12,391	12,655	12,666	12,571	12,511	12,514	12,576	12,641	12,877	12,822
Participation rate	66.1	65.8	66.0	66.0	65.7	65.6	66.9	66.7	66.1	65.6	65.4	65.6	65.7	66.7	66.3
Employed	10,788	11,127	12,247	11,251	11,227	11,237	11,493	11,432	11,308	11,294	11,365	11,472	11,500	11,750	11,766
Employment-population ratio[2]	59.5	59.7	60.0	59.8	59.6	59.5	60.7	60.2	59.4	59.2	59.4	59.8	59.8	60.9	60.8
Unemployed	1,187	1,140	1,122	1,159	1,147	1,154	1,162	1,234	1,262	1,217	1,149	1,104	1,141	1,127	1,057
Unemployment rate	9.9	9.3	9.1	9.3	9.3	9.3	9.2	9.7	10.0	9.7	9.2	8.8	9.0	8.7	8.2

[1] The population figures are not seasonally adjusted.

[2] Civilian employment as a percent of the civilian noninstitutional population.

NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" groups are not presented and Hispanics are included in both the white and black population groups.

5. Selected employment indicators, monthly data seasonally adjusted

[In thousands]

Selected categories	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Characteristic															
Employed, 16 years and over	123,060	124,900	125,036	125,244	125,062	124,981	125,226	125,663	126,151	126,095	126,462	126,610	126,884	127,055	127,368
Men	66,450	67,377	67,328	67,416	67,177	67,162	67,501	67,764	67,856	67,933	68,278	68,283	68,400	68,442	68,319
Women	56,610	57,523	57,708	57,828	57,885	57,819	57,725	57,899	58,294	58,161	58,184	58,326	58,484	58,613	59,049
Married men, spouse present	41,414	42,048	42,178	42,281	42,081	42,058	42,171	42,339	42,178	42,067	42,406	42,587	42,478	42,622	42,265
Married women, spouse present	31,536	32,063	32,180	32,185	32,153	32,072	32,078	32,101	32,053	31,868	32,330	32,649	32,713	32,732	32,765
Women who maintain families	7,053	7,164	7,155	7,089	7,274	7,304	7,294	7,295	7,397	7,389	7,314	7,360	7,230	7,291	7,443
Class of worker															
Agriculture:															
Wage and salary workers	1,715	1,814	1,754	1,806	1,750	1,755	1,964	1,954	1,859	1,862	2,026	1,900	1,863	1,802	1,833
Self-employed workers	1,645	1,580	1,525	1,543	1,514	1,521	1,547	1,531	1,572	1,484	1,456	1,457	1,564	1,528	1,597
Unpaid family workers	49	45	43	49	34	46	48	34	41	52	46	35	52	65	97
Nonagricultural industries:															
Wage and salary workers	110,517	112,448	112,586	112,777	112,722	112,618	112,568	113,165	113,461	113,527	114,032	114,130	114,294	114,634	114,906
Government	18,293	18,362	18,249	18,244	18,288	18,237	18,044	18,259	18,005	18,290	18,256	18,239	18,294	18,286	18,088
Private industries	92,224	94,086	94,337	94,533	94,434	94,381	94,524	94,906	95,456	95,237	95,776	95,801	96,000	96,348	96,820
Private households	966	963	959	973	980	975	931	873	901	844	918	812	935	1,009	1,006
Other	91,258	93,123	93,378	93,560	93,454	93,406	93,593	94,032	94,555	94,393	94,858	94,898	95,065	95,339	95,814
Self-employed workers	9,003	8,902	8,954	8,913	8,853	8,877	8,913	8,953	9,092	9,081	8,878	9,073	8,998	8,876	8,763
Unpaid family workers	131	110	112	102	105	106	85	116	102	101	124	136	130	121	127
Persons at work part time[1]															
All industries:															
Part time for economic reasons	4,625	4,473	4,502	4,433	4,435	4,447	4,091	4,502	4,479	4,525	4,277	4,301	4,366	4,354	4,309
Slack work or business conditions	2,432	2,471	2,526	2,520	2,526	2,537	2,250	2,533	2,548	2,594	2,216	2,322	2,589	2,477	2,426
Could only find part-time work	1,871	1,702	1,706	1,652	1,648	1,615	1,509	1,621	1,596	1,571	1,719	1,569	1,494	1,610	1,616
Part time for noneconomic reasons	17,638	17,734	17,842	17,678	17,452	17,405	17,198	17,493	17,915	17,487	17,620	18,211	17,814	18,229	17,710
Nonagricultural industries:															
Part time for economic reasons	4,414	4,279	4,355	4,274	4,283	4,306	3,842	4,274	4,223	4,287	4,068	4,146	4,159	4,205	4,128
Slack work or business conditions	2,311	2,346	2,413	2,426	2,419	2,440	2,114	2,382	2,386	2,476	2,092	2,215	2,457	2,350	2,318
Could only find part-time work	1,824	1,663	1,675	1,610	1,622	1,583	1,472	1,607	1,561	1,534	1,663	1,542	1,479	1,600	1,574
Part time for noneconomic reasons	17,007	17,093	17,218	17,054	16,852	16,804	16,520	16,884	17,266	16,994	17,038	17,623	17,157	17,613	17,036

[1] Excludes persons "with a job but not at work" during the survey period for such reasons as vacation, illness, or industrial disputes.

6. Selected unemployment indicators, monthly data seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Characteristic															
Total, all workers	6.1	5.6	5.6	5.5	5.6	5.6	5.8	5.5	5.6	5.4	5.6	5.3	5.4	5.1	5.2
Both sexes, 16 to 19 years	17.6	17.3	17.7	17.1	17.8	18.0	18.2	16.6	17.5	16.7	16.4	15.9	16.4	17.2	15.6
Men, 20 years and over	5.4	4.8	4.8	4.5	4.9	4.8	4.9	4.9	5.0	4.8	4.8	4.6	4.7	4.2	4.5
Women, 20 years and over	5.4	4.9	4.9	5.0	4.8	4.7	5.1	4.8	4.8	4.7	5.0	4.6	4.9	4.6	4.5
White, total	5.3	4.9	4.9	4.8	5.0	4.9	5.0	4.9	4.8	4.7	4.9	4.6	4.7	4.4	4.5
Both sexes, 16 to 19 years	15.1	14.5	14.7	14.8	15.5	15.4	15.9	14.4	14.8	14.1	14.1	13.9	14.4	14.4	13.2
Men, 16 to 19 years	16.3	15.6	15.8	16.8	16.4	16.0	16.6	15.2	16.0	15.2	15.2	14.7	16.6	15.6	14.5
Women, 16 to 19 years	13.8	13.4	13.4	12.5	14.5	14.7	15.1	13.4	13.4	12.9	12.9	13.0	12.0	13.2	11.8
Men, 20 years and over	4.8	4.3	4.3	4.0	4.4	4.3	4.2	4.3	4.3	4.2	4.2	4.1	4.1	3.7	3.9
Women, 20 years and over	4.6	4.3	4.2	4.4	4.3	4.3	4.4	4.3	4.1	4.1	4.4	3.9	4.1	4.0	3.9
Black, total	11.5	10.4	11.1	10.0	9.6	10.2	10.6	10.3	11.1	10.5	10.2	10.1	10.5	10.5	10.5
Both sexes, 16 to 19 years	35.2	35.7	37.5	34.0	32.3	35.0	34.6	32.1	33.5	32.7	28.9	30.0	33.1	37.6	33.6
Men, 16 to 19 years	37.6	37.1	36.0	35.3	33.7	39.0	39.1	30.6	38.2	34.1	27.4	35.3	43.3	38.6	36.6
Women, 16 to 19 years	32.6	34.3	38.9	32.7	30.8	31.4	30.4	33.6	28.4	31.3	30.2	25.0	20.9	36.5	30.7
Men, 20 years and over	10.3	8.8	9.4	8.3	8.3	9.3	9.0	10.1	10.9	9.6	9.6	9.2	9.2	8.2	9.8
Women, 20 years and over	9.8	8.6	9.0	8.6	7.8	7.7	9.1	7.8	8.4	8.4	8.3	8.5	9.0	9.1	8.4
Hispanic origin, total	9.9	9.3	9.1	9.3	9.3	9.3	9.2	9.7	10.0	9.7	9.2	8.8	9.0	8.7	8.2
Married men, spouse present	3.7	3.3	3.4	3.2	3.3	3.2	3.3	3.0	3.1	3.0	2.9	3.0	3.0	2.9	3.0
Married women, spouse present	4.1	3.9	3.9	3.9	3.8	3.8	4.0	3.8	3.5	3.7	3.8	3.6	3.5	3.2	3.3
Women who maintain families	8.9	8.0	8.0	7.9	7.7	6.8	8.2	7.5	7.7	6.8	8.7	7.6	9.1	8.8	8.3
Full-time workers	6.1	5.5	5.5	5.4	5.5	5.5	5.7	5.4	5.5	5.4	5.5	5.2	5.3	4.9	5.1
Part-time workers	6.0	6.0	5.9	5.9	5.9	5.9	6.0	6.2	6.0	5.8	5.9	5.6	6.1	5.9	5.6
Industry															
Nonagricultural wage and salary workers	6.3	5.8	5.8	5.7	5.8	5.8	5.8	5.7	5.8	5.7	5.7	5.5	5.5	5.3	5.3
Mining	5.4	5.2	3.3	8.7	7.0	8.1	5.2	6.5	6.8	4.4	2.1	4.7	2.8	4.4	5.1
Construction	11.8	11.5	12.4	11.7	12.0	11.5	10.7	11.2	10.0	10.2	10.0	9.5	10.1	8.8	9.1
Manufacturing	5.6	4.9	4.9	4.8	5.0	5.0	5.0	4.9	5.3	4.8	5.1	5.1	4.6	4.7	4.3
Durable goods	5.2	4.4	4.2	4.3	4.5	4.4	4.4	5.3	5.1	4.8	4.8	4.6	4.2	3.8	4.0
Nondurable goods	6.0	5.7	5.9	5.6	5.8	5.8	5.7	4.4	5.7	4.8	5.5	5.7	5.3	6.0	4.6
Transportation and public utilities	4.8	4.5	4.5	4.3	4.2	4.6	3.7	3.8	4.2	4.2	4.2	4.5	4.3	4.2	4.0
Wholesale and retail trade	7.4	6.5	6.9	6.3	6.3	6.4	6.8	6.3	6.9	6.6	6.6	6.4	6.3	6.3	6.0
Finance, insurance, and real estate	3.6	3.3	3.1	3.3	3.0	3.2	2.9	2.2	2.5	2.3	2.5	2.6	2.8	2.4	3.2
Services	5.9	5.4	5.2	5.5	5.5	5.5	5.7	5.7	5.4	5.6	5.7	5.1	5.5	5.2	5.3
Government workers	3.4	2.9	2.8	2.9	2.9	2.8	2.8	3.0	2.8	2.9	3.3	2.7	3.2	2.7	3.0
Agricultural wage and salary workers	11.3	11.1	11.6	12.2	12.0	12.6	10.5	10.7	10.7	10.9	10.0	9.2	8.6	7.4	11.0

7. Duration of unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Less than 5 weeks	2,728	2,700	2,786	2,744	2,767	2,717	2,784	2,793	2,623	2,412	2,815	2,485	2,701	2,486	2,446
5 to 14 weeks	2,408	2,342	2,317	2,348	2,383	2,431	2,413	2,280	2,298	2,337	2,334	2,160	2,322	2,129	2,245
15 weeks and over	2,860	2,363	2,323	2,281	2,305	2,322	2,370	2,307	2,479	2,388	2,336	2,435	2,319	2,248	2,279
15 to 26 weeks	1,237	1,085	1,054	1,010	1,057	1,085	1,118	1,126	1,164	1,106	1,020	1,116	958	978	1,054
27 weeks and over	1,623	1,278	1,269	1,271	1,248	1,237	1,252	1,181	1,316	1,282	1,317	1,319	1,361	1,270	1,225
Mean duration, in weeks	18.8	16.6	16.3	16.2	16.3	16.2	16.0	16.6	17.3	17.4	16.8	17.6	16.8	17.4	17.0
Median duration, in weeks	9.2	8.3	8.1	8.1	8.0	8.1	8.3	8.0	8.3	8.8	8.3	8.1	8.6	8.5	8.9

8. Unemployed persons by reason for unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Reason for unemployment	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Job losers[1]	3,815	3,476	3,422	3,457	3,485	3,484	3,606	3,595	3,564	3,625	3,388	3,431	3,343	3,054	3,225
On temporary layoff	977	1,030	967	1,018	1,049	1,012	1,132	1,032	1,027	1,116	1,154	990	953	889	1,059
Not on temporary layoff	2,838	2,446	2,455	2,439	2,436	2,472	2,474	2,564	2,537	2,509	2,234	2,441	2,391	2,165	2,167
Job leavers	791	824	875	762	857	881	869	747	782	702	661	676	749	773	807
Reentrants	2,786	2,525	2,551	2,506	2,504	2,466	2,458	2,517	2,588	2,379	2,784	2,419	2,529	2,448	2,404
New entrants	604	579	601	559	585	603	641	613	591	550	532	528	623	548	545
Percent of unemployed															
Job losers[1]	47.7	46.9	45.9	47.5	46.9	46.9	47.6	48.1	47.4	50.0	46.0	48.6	46.1	44.8	46.2
On temporary layoff	12.2	13.9	13.0	14.0	14.1	13.6	14.9	13.8	13.6	15.4	15.7	14.0	13.1	13.0	15.2
Not on temporary layoff	35.5	33.0	33.0	33.5	32.8	33.3	32.7	34.3	33.7	34.6	30.3	34.6	33.0	31.7	31.0
Job leavers	9.9	11.1	11.7	10.5	11.5	11.9	11.5	10.0	10.4	9.7	9.0	9.6	10.3	11.3	11.6
Reentrants	34.8	34.1	34.2	34.4	33.7	33.2	32.5	33.7	34.4	32.8	37.8	34.3	34.9	35.9	34.4
New entrants	7.6	7.8	8.1	7.7	7.9	8.1	8.5	8.2	7.9	7.6	7.2	7.5	8.6	8.0	7.8
Percent of civilian labor force															
Job losers[1]	2.9	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.5	2.6	2.5	2.3	2.4
Job leavers	0.6	0.6	0.7	0.6	0.6	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.6	0.6	0.6
Reentrants	2.1	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.8	2.1	1.8	1.9	1.8	1.8
New entrants	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4

[1] Includes persons who completed temporary jobs.

9. Unemployment rates by sex and age, monthly data seasonally adjusted

[Civilian workers]

Sex and age	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Total, 16 years and over	6.1	5.6	5.6	5.5	5.6	5.6	5.8	5.5	5.6	5.4	5.6	5.3	5.4	5.1	5.2
16 to 24 years	12.5	12.1	12.6	12.2	12.1	12.5	13.0	12.4	12.4	11.8	12.2	11.7	12.2	11.5	11.2
16 to 19 years	17.6	17.3	17.7	17.1	17.8	18.0	18.2	16.6	17.5	16.7	16.4	15.9	16.4	17.2	15.6
16 to 17 years	19.9	20.2	20.1	20.4	20.1	20.9	20.5	20.0	19.4	18.7	19.4	19.0	19.4	19.1	17.2
18 to 19 years	16.0	15.3	15.7	15.1	16.1	16.1	16.9	14.3	16.1	15.3	14.2	13.4	14.1	16.0	14.5
20 to 24 years	9.7	9.1	9.7	9.4	8.8	9.2	10.0	9.9	9.5	9.0	9.7	9.3	9.7	8.3	8.7
25 years and over	4.8	4.3	4.3	4.2	4.4	4.3	4.3	4.3	4.3	4.2	4.3	4.1	4.2	3.9	4.1
25 to 54 years	5.0	4.5	4.4	4.4	4.4	4.4	4.5	4.4	4.4	4.3	4.4	4.2	4.2	4.1	4.2
55 years and over	4.1	3.7	3.5	3.5	3.7	3.6	3.5	3.6	3.8	3.3	3.6	3.6	3.8	3.1	3.3
Men, 16 years and over	6.2	5.6	5.6	5.4	5.7	5.6	5.7	5.5	5.8	5.6	5.5	5.3	5.5	4.9	5.2
16 to 24 years	13.2	12.5	12.8	12.9	12.8	13.0	12.9	13.1	13.4	12.8	12.9	12.4	13.3	11.5	11.9
16 to 19 years	19.0	18.4	18.6	19.2	18.9	18.9	19.2	17.0	19.4	17.9	17.2	17.0	19.4	18.2	17.1
16 to 17 years	21.0	21.1	20.7	21.5	21.7	21.7	22.3	21.7	21.4	21.2	20.0	20.5	24.2	22.0	18.6
18 to 19 years	17.6	16.5	16.8	17.4	17.0	16.9	17.4	13.9	18.0	16.1	15.4	14.2	16.1	15.9	16.1
20 to 24 years	10.2	9.2	9.6	9.3	9.4	9.6	9.3	10.9	10.0	9.9	10.4	9.7	9.8	7.7	8.8
25 years and over	4.8	4.3	4.3	4.0	4.4	4.3	4.2	4.2	4.4	4.2	4.1	4.0	4.0	3.8	4.0
25 to 54 years	4.9	4.4	4.4	4.1	4.4	4.4	4.4	4.4	4.5	4.4	4.2	4.1	4.1	3.8	4.2
55 years and over	4.3	3.7	3.8	3.4	3.7	3.5	3.5	3.5	3.5	3.0	3.3	3.5	3.8	3.2	3.2
Women, 16 years and over	6.0	5.6	5.6	5.6	5.5	5.5	5.8	5.5	5.4	5.3	5.7	5.2	5.4	5.3	5.1
16 to 24 years	11.6	11.6	12.3	11.5	11.4	11.9	13.1	11.5	11.4	10.7	11.4	11.0	10.9	11.6	10.6
16 to 19 years	16.2	16.1	16.6	14.8	16.7	17.1	17.1	16.1	15.4	15.3	15.6	14.8	13.1	16.2	14.0
16 to 17 years	18.7	19.2	19.5	19.2	18.5	20.1	18.7	18.1	17.3	16.1	18.8	17.5	14.4	16.3	15.7
18 to 19 years	14.3	14.0	14.5	12.6	15.1	15.1	16.2	14.7	14.0	14.4	12.9	12.5	11.8	16.0	12.9
20 to 24 years	9.2	9.0	9.8	9.5	8.2	8.8	10.8	8.8	9.1	8.1	8.8	8.7	9.5	8.9	8.5
25 years and over	4.9	4.4	4.3	4.4	4.3	4.3	4.4	4.3	4.3	4.2	4.5	4.1	4.3	4.1	4.1
25 to 54 years	5.0	4.5	4.5	4.6	4.4	4.4	4.6	4.4	4.3	4.2	4.6	4.2	4.4	4.3	4.2
55 years and over	3.9	3.6	3.2	3.7	3.8	3.7	3.4	3.8	4.2	3.6	3.9	3.6	3.7	2.9	3.4

10. Unemployment rates by State, seasonally adjusted

State	Sept. 1995	Aug. 1996	Sept. 1996[P]	State	Sept. 1995	Aug. 1996	Sept. 1996[P]
Alabama	6.5	4.5	4.7	Missouri	4.7	3.9	3.9
Alaska	7.3	7.3	7.3	Montana	6.1	5.5	5.4
Arizona	4.9	5.4	5.5	Nebraska	2.6	2.6	2.4
Arkansas	4.9	5.3	5.3	Nevada	5.2	5.2	5.4
California	7.8	7.1	7.0	New Hampshire	4.1	3.8	4.3
Colorado	4.3	4.1	4.1	New Jersey	6.4	6.1	6.2
Connecticut	5.6	4.7	4.9	New Mexico	6.4	7.1	7.1
Delaware	4.5	5.3	5.2	New York	6.4	6.1	5.9
District of Columbia	9.2	9.1	8.6	North Carolina	4.4	4.1	4.2
Florida	5.5	5.1	5.3	North Dakota	3.2	2.7	2.8
Georgia	5.0	4.4	4.4	Ohio	4.9	4.6	4.8
Hawaii	6.0	6.0	5.4	Oklahoma	4.6	4.4	4.3
Idaho	5.4	5.0	5.1	Oregon	5.0	5.4	5.0
Illinois	5.2	5.4	5.2	Pennsylvania	5.9	5.3	5.0
Indiana	4.6	4.1	4.2	Rhode Island	7.1	5.2	5.1
Iowa	3.5	3.0	3.1	South Carolina	5.1	5.9	5.9
Kansas	4.3	4.1	4.0	South Dakota	2.9	2.8	2.9
Kentucky	5.5	4.5	4.7	Tennessee	5.4	4.4	4.5
Louisiana	6.6	6.8	6.9	Texas	6.1	5.6	5.4
Maine	5.7	5.5	5.1	Utah	3.5	2.9	3.0
Maryland	5.2	4.8	4.9	Vermont	4.3	4.3	4.4
Massachusetts	5.3	4.0	4.2	Virginia	4.5	4.0	4.2
Michigan	5.2	4.5	4.7	Washington	6.4	5.9	6.0
Minnesota	3.7	3.9	3.9	West Virginia	8.0	6.9	7.3
Mississippi	6.5	6.2	5.1	Wisconsin	3.7	3.5	3.3
				Wyoming	4.7	4.7	4.7

[P] = preliminary

11. Employment of workers on nonfarm payrolls by State, seasonally adjusted

[In thousands]

State	Sept. 1995	Aug. 1996	Sept. 1996[P]	State	Sept. 1995	Aug. 1996	Sept. 1996[P]
Alabama	1,811.9	1,819.2	1,821.1	Missouri	2,527.7	2,556.7	2,566.3
Alaska	263.0	263.8	266.9	Montana	351.9	360.1	360.0
Arizona	1,795.2	1,872.5	1,870.7	Nebraska	818.2	830.2	832.5
Arkansas	1,074.9	1,089.2	1,091.9	Nevada	804.7	851.9	858.1
California	12,532.1	12,789.9	12,820.4	New Hampshire	542.8	550.1	546.9
Colorado	1,857.9	1,893.4	1,890.9	New Jersey	3,617.0	3,643.1	3,647.0
Connecticut	1,569.7	1,583.6	1,584.9	New Mexico	691.8	719.2	716.1
Delaware	369.0	374.7	375.1	New York	7,879.2	7,934.5	7,944.8
District of Columbia	642.6	629.7	626.5	North Carolina	3,475.7	3,516.0	3,520.6
Florida	6,059.7	6,186.4	6,225.0	North Dakota	302.8	310.5	310.7
Georgia	3,447.6	3,559.7	3,547.4	Ohio	5,255.4	5,324.6	5,312.6
Hawaii	531.5	527.4	525.1	Oklahoma	1,319.4	1,353.9	1,356.9
Idaho	478.3	504.4	503.8	Oregon	1,431.8	1,483.8	1,491.0
Illinois	5,625.5	5,712.4	5,706.7	Pennsylvania	5,254.0	5,288.3	5,279.3
Indiana	2,794.0	2,785.9	2,812.9	Rhode Island	442.7	443.5	444.0
Iowa	1,360.5	1,379.9	1,381.0	South Carolina	1,660.2	1,690.9	1,690.6
Kansas	1,204.3	1,230.2	1,229.4	South Dakota	345.7	353.6	352.4
Kentucky	1,648.2	1,673.5	1,678.4	Tennessee	2,522.4	2,562.9	2,573.6
Louisiana	1,790.5	1,802.9	1,806.0	Texas	8,065.8	8,300.8	8,311.7
Maine	542.8	542.2	543.4	Utah	919.6	964.9	970.9
Maryland	2,186.0	2,196.1	2,194.3	Vermont	271.0	275.1	276.5
Massachusetts	2,990.8	3,028.9	3,030.9	Virginia	3,067.4	3,127.6	3,130.2
Michigan	4,253.9	4,338.3	4,348.3	Washington	2,357.6	2,423.7	2,431.7
Minnesota	2,382.7	2,437.5	2,438.3	West Virginia	689.2	697.3	696.9
Mississippi	1,078.2	1,079.6	1,069.5	Wisconsin	2,561.7	2,596.1	2,594.0
				Wyoming	220.1	220.8	222.9

[P] = preliminary

NOTE: Some data in this table may differ from data published elsewhere because of the continual updating of the data base.

12. Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.[p]	Se
TOTAL	114,172	117,203	117,623	117,749	117,899	118,136	118,070	118,579	118,737	118,928	119,335	119,554	119,789	120,030	119
PRIVATE SECTOR	95,044	97,892	98,298	98,410	98,561	98,789	98,734	99,214	99,343	99,531	99,877	100,103	100,307	100,439	100
GOODS-PRODUCING	23,908	24,206	24,176	24,151	24,133	24,160	24,112	24,254	24,196	24,209	24,262	24,275	24,265	24,295	24
Mining[1]	601	580	574	573	569	570	569	573	574	573	576	575	570	571	
Metal mining	49	51	51	51	50	51	51	51	51	51	52	52	52	52	
Oil and gas extraction	337	318	313	312	309	310	310	313	314	314	316	314	310	311	
Nonmetallic minerals, except fuels	104	106	106	106	107	107	107	107	108	107	107	108	108	108	
Construction	4,986	5,158	5,187	5,200	5,211	5,223	5,234	5,349	5,340	5,353	5,384	5,403	5,427	5,438	5
General building contractors	1,188	1,200	1,195	1,198	1,200	1,202	1,205	1,218	1,223	1,227	1,229	1,233	1,231	1,232	1
Heavy construction, except building	740	751	756	755	751	750	741	764	769	765	764	768	769	770	
Special trades contractors	3,058	3,207	3,236	3,247	3,260	3,271	3,288	3,367	3,348	3,361	3,391	3,402	3,427	3,436	3
Manufacturing	18,321	18,468	18,415	18,378	18,353	18,367	18,309	18,332	18,282	18,283	18,302	18,297	18,268	18,286	18
Production workers	12,632	12,787	12,747	12,707	12,690	12,708	12,656	12,671	12,617	12,623	12,632	12,635	12,612	12,622	12
Durable goods	10,448	10,654	10,648	10,631	10,628	10,667	10,643	10,659	10,623	10,654	10,679	10,695	10,680	10,707	10
Production workers	7,104	7,298	7,294	7,272	7,270	7,309	7,288	7,298	7,262	7,290	7,302	7,327	7,311	7,337	7
Lumber and wood products	754	764	762	762	762	763	750	756	755	761	762	766	765	769	
Furniture and fixtures	505	509	506	504	504	506	503	502	500	498	500	500	500	500	
Stone, clay, and glass products	532	538	536	536	535	534	532	536	536	534	537	536	535	536	
Primary metal industries	698	710	707	708	710	709	709	708	706	704	705	708	700	706	
Blast furnaces and basic steel products	239	241	240	240	241	240	240	240	239	238	239	239	237	237	
Fabricated metal products	1,388	1,438	1,437	1,439	1,441	1,441	1,442	1,443	1,442	1,440	1,443	1,450	1,453	1,456	1
Industrial machinery and equipment	1,990	2,059	2,066	2,075	2,079	2,084	2,085	2,083	2,087	2,086	2,087	2,088	2,088	2,085	2
Computer and office equipment	354	351	352	355	356	357	357	357	358	358	360	359	357	359	
Electronic and other electrical equipment	1,571	1,625	1,633	1,637	1,640	1,645	1,646	1,652	1,651	1,650	1,652	1,651	1,656	1,652	1
Electronic components and accessories	544	582	591	596	600	605	609	614	614	615	615	614	616	615	
Transportation equipment	1,761	1,785	1,780	1,751	1,737	1,764	1,757	1,759	1,726	1,763	1,773	1,775	1,766	1,786	1
Motor vehicles and equipment	909	968	968	966	958	959	956	957	924	958	965	967	953	968	
Aircraft and parts	482	449	447	421	417	446	446	446	445	447	449	446	453	454	
Instruments and related products	861	837	834	832	830	831	831	831	832	832	834	835	832	832	
Miscellaneous manufacturing industries	389	389	387	387	390	390	388	389	388	386	386	386	385	385	
Nondurable goods	7,873	7,814	7,767	7,747	7,725	7,700	7,666	7,673	7,659	7,629	7,623	7,602	7,588	7,579	7
Production workers	5,528	5,489	5,453	5,435	5,420	5,399	5,368	5,373	5,355	5,333	5,330	5,308	5,301	5,285	5
Food and kindred products	1,678	1,680	1,678	1,676	1,676	1,674	1,672	1,675	1,675	1,666	1,664	1,647	1,640	1,641	1
Tobacco products	43	42	42	42	42	41	41	41	41	41	41	41	40	38	
Textile mill products	676	667	657	655	652	649	640	644	642	636	637	637	637	634	
Apparel and other textile products	974	930	913	901	891	883	868	873	863	859	853	847	849	835	
Paper and allied products	692	692	690	688	686	685	684	682	681	677	679	676	672	674	
Printing and publishing	1,537	1,543	1,539	1,538	1,537	1,535	1,533	1,531	1,531	1,527	1,525	1,528	1,527	1,527	1
Chemicals and allied products	1,057	1,035	1,030	1,031	1,030	1,025	1,026	1,025	1,027	1,024	1,025	1,020	1,019	1,020	1
Petroleum and coal products	149	144	142	142	140	140	140	140	140	139	139	140	139	140	
Rubber and miscellaneous plastics products	953	976	972	971	969	967	964	963	960	962	963	969	968	976	
Leather and leather products	113	106	104	103	102	101	98	99	99	98	97	97	97	94	
SERVICE-PRODUCING	90,264	92,997	93,447	93,598	93,766	93,976	93,958	94,325	94,541	94,719	95,073	95,279	95,524	95,735	95
Transportation and public utilities	5,993	6,165	6,194	6,212	6,233	6,249	6,254	6,270	6,289	6,294	6,311	6,327	6,335	6,340	6
Transportation	3,769	3,918	3,936	3,947	3,964	3,977	3,980	3,994	4,008	4,015	4,028	4,043	4,053	4,054	4
Railroad transportation	241	239	236	236	236	237	235	234	233	233	232	231	229	231	
Local and interurban passenger transit	404	423	430	431	433	436	436	439	441	442	450	453	459	459	
Trucking and warehousing	1,794	1,867	1,868	1,872	1,878	1,874	1,874	1,879	1,883	1,882	1,891	1,890	1,889	1,880	1
Water transportation	172	174	174	173	174	172	172	171	171	173	167	171	172	173	
Transportation by air	753	788	796	802	808	820	822	827	834	837	837	844	848	853	
Pipelines, except natural gas	17	15	15	14	14	14	14	14	14	14	14	14	14	14	
Transportation services	389	413	417	419	421	424	427	430	432	434	437	440	442	444	
Communications and public utilities	2,223	2,247	2,258	2,265	2,269	2,272	2,274	2,276	2,281	2,279	2,283	2,284	2,282	2,286	2
Communications	1,295	1,333	1,346	1,352	1,358	1,362	1,367	1,371	1,378	1,378	1,384	1,388	1,391	1,398	1
Electric, gas, and sanitary services	928	914	912	913	911	910	907	905	903	901	899	896	891	888	
Wholesale trade	6,162	6,412	6,451	6,465	6,478	6,498	6,512	6,529	6,548	6,550	6,567	6,576	6,585	6,598	6
Retail trade	20,507	21,173	21,258	21,263	21,300	21,334	21,268	21,340	21,343	21,422	21,499	21,575	21,672	21,676	21
Building materials and garden supplies	833	871	873	873	878	882	882	880	887	896	907	917	922	924	
General merchandise stores	2,583	2,678	2,679	2,700	2,681	2,674	2,651	2,674	2,681	2,679	2,728	2,726	2,731	2,745	2
Department stores	2,246	2,348	2,350	2,376	2,349	2,348	2,330	2,354	2,362	2,358	2,409	2,408	2,413	2,422	2

See footnotes at end of table.

Continued—Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

ousands]

Industry	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.[P]	Sept.[P]
od stores	3,291	3,364	3,379	3,379	3,395	3,402	3,399	3,401	3,402	3,401	3,416	3,422	3,435	3,445	3,444
itomotive dealers and service stations	2,116	2,190	2,199	2,206	2,212	2,220	2,227	2,234	2,242	2,253	2,259	2,272	2,286	2,291	2,297
lew and used car dealers	963	996	999	1,002	1,005	1,008	1,011	1,015	1,020	1,025	1,027	1,030	1,034	1,036	1,037
pparel and accessory stores	1,144	1,127	1,112	1,109	1,111	1,106	1,100	1,099	1,100	1,098	1,100	1,101	1,103	1,099	1,097
rniture and home furnishings stores	889	942	950	948	948	945	949	949	951	957	963	972	981	987	992
ating and drinking places	7,078	7,350	7,399	7,391	7,413	7,441	7,405	7,440	7,413	7,469	7,454	7,485	7,528	7,489	7,504
iscellaneous retail establishments	2,573	2,652	2,667	2,657	2,662	2,664	2,655	2,663	2,667	2,669	2,672	2,680	2,686	2,696	2,694
ance, insurance, and eal estate	6,896	6,830	6,842	6,859	6,871	6,887	6,894	6,919	6,932	6,942	6,964	6,967	6,987	6,998	7,005
nance	3,299	3,238	3,239	3,248	3,256	3,266	3,277	3,288	3,293	3,303	3,315	3,319	3,329	3,339	3,340
Depository institutions	2,066	2,026	2,020	2,019	2,020	2,020	2,022	2,023	2,020	2,023	2,026	2,029	2,030	2,029	2,029
Commercial banks	1,484	1,467	1,464	1,464	1,465	1,465	1,467	1,467	1,464	1,467	1,469	1,470	1,471	1,471	1,473
Savings institutions	305	275	270	270	268	267	266	266	266	266	267	267	265	264	263
Nondepository institutions	491	462	466	473	478	484	490	496	501	505	507	509	514	519	521
Security and commodity brokers	516	523	524	525	526	528	529	531	532	534	538	541	543	548	546
Holding and other investment offices	227	227	229	231	232	234	236	238	240	241	244	240	242	243	244
surance	2,236	2,238	2,244	2,249	2,249	2,251	2,253	2,255	2,258	2,256	2,261	2,259	2,261	2,259	2,264
Insurance carriers	1,552	1,541	1,544	1,546	1,546	1,546	1,547	1,547	1,549	1,549	1,552	1,551	1,553	1,551	1,554
Insurance agents, brokers, and service	684	697	700	703	703	705	706	708	709	707	709	708	708	708	710
eal estate	1,361	1,354	1,359	1,362	1,366	1,370	1,364	1,376	1,381	1,383	1,388	1,389	1,397	1,400	1,401
rvices[1]	31,579	33,107	33,377	33,460	33,546	33,661	33,694	33,902	34,035	34,114	34,274	34,383	34,463	34,532	34,586
gricultural services	564	579	581	584	584	591	593	602	603	606	605	615	619	620	615
otels and other lodging places	1,631	1,657	1,660	1,656	1,648	1,648	1,652	1,657	1,662	1,673	1,681	1,704	1,689	1,684	1,681
ersonal services	1,140	1,164	1,164	1,166	1,164	1,167	1,170	1,174	1,174	1,179	1,177	1,175	1,174	1,179	1,180
usiness services	6,281	6,786	6,877	6,900	6,922	6,963	6,942	7,026	7,058	7,085	7,152	7,189	7,225	7,270	7,275
Services to buildings	857	882	887	887	888	892	883	899	899	900	903	895	893	892	888
Personnel supply services	2,272	2,475	2,508	2,511	2,518	2,534	2,510	2,552	2,565	2,569	2,622	2,648	2,668	2,693	2,704
Help supply services	2,017	2,189	2,216	2,221	2,226	2,239	2,216	2,254	2,265	2,272	2,322	2,353	2,367	2,387	2,394
Computer and data processing services	959	1,080	1,107	1,116	1,125	1,137	1,140	1,148	1,155	1,169	1,184	1,195	1,206	1,218	1,226
uto repair services and parking	968	1,020	1,025	1,035	1,039	1,047	1,051	1,059	1,066	1,072	1,078	1,085	1,096	1,103	1,105
liscellaneous repair services	338	356	357	355	358	359	358	359	361	363	364	366	365	366	367
lotion pictures	441	489	501	503	506	508	513	515	520	517	525	526	532	525	545
musement and recreation services	1,334	1,436	1,463	1,472	1,471	1,473	1,490	1,505	1,519	1,517	1,516	1,504	1,514	1,515	1,512
lealth services	8,992	9,257	9,318	9,347	9,383	9,412	9,427	9,463	9,499	9,520	9,555	9,556	9,577	9,587	9,617
Offices and clinics of medical doctors	1,545	1,606	1,617	1,623	1,630	1,635	1,638	1,644	1,650	1,659	1,668	1,674	1,677	1,679	1,685
Nursing and personal care facilities	1,649	1,693	1,703	1,707	1,712	1,715	1,718	1,722	1,728	1,733	1,740	1,744	1,747	1,749	1,750
Hospitals	3,763	3,784	3,793	3,802	3,810	3,818	3,822	3,833	3,842	3,844	3,851	3,847	3,850	3,849	3,863
Home health care services	559	626	638	641	645	650	648	653	655	658	658	657	656	655	655
egal services	924	923	923	923	924	924	925	927	927	926	929	929	933	935	932
ducational services	1,850	1,959	1,966	1,974	1,975	1,978	1,969	1,985	1,991	1,994	1,987	2,001	2,017	2,015	2,002
Social services	2,200	2,333	2,359	2,352	2,355	2,360	2,362	2,372	2,377	2,385	2,395	2,396	2,404	2,393	2,406
Child day care services	515	564	569	567	568	567	567	568	569	569	571	570	568	576	557
Residential care	604	640	645	646	646	649	651	654	656	661	663	665	669	672	673
Museums and botanical and zoological gardens	79	80	80	81	82	82	83	83	83	84	85	85	85	85	84
Membership organizations	2,082	2,132	2,131	2,126	2,133	2,136	2,135	2,137	2,136	2,137	2,147	2,148	2,146	2,149	2,144
Engineering and management services	2,579	2,747	2,781	2,795	2,810	2,821	2,833	2,847	2,867	2,863	2,885	2,901	2,894	2,912	2,927
Engineering and architectural services	778	814	818	821	824	825	825	827	829	834	838	848	845	848	853
Management and public relations	719	817	847	852	860	865	873	881	894	892	897	901	904	913	920
overnment	19,128	19,310	19,325	19,339	19,338	19,347	19,336	19,365	19,394	19,397	19,458	19,451	19,482	19,591	19,510
ederal	2,870	2,822	2,812	2,801	2,796	2,790	2,783	2,780	2,780	2,777	2,776	2,756	2,752	2,742	2,737
Federal, except Postal Service	2,053	1,978	1,965	1,953	1,946	1,939	1,930	1,926	1,922	1,920	1,918	1,906	1,897	1,891	1,884
State	4,576	4,642	4,638	4,636	4,634	4,634	4,625	4,636	4,640	4,645	4,655	4,654	4,658	4,665	4,665
Education	1,882	1,931	1,935	1,935	1,937	1,939	1,933	1,945	1,952	1,956	1,963	1,968	1,980	1,979	1,984
Other State government	2,694	2,711	2,703	2,701	2,697	2,695	2,692	2,691	2,688	2,689	2,692	2,686	2,678	2,686	2,681
Local	11,682	11,847	11,875	11,902	11,908	11,923	11,928	11,949	11,974	11,975	12,027	12,041	12,072	12,184	12,108
Education	6,479	6,603	6,628	6,629	6,641	6,649	6,646	6,659	6,675	6,682	6,690	6,724	6,767	6,852	6,785
Other local government	5,203	5,244	5,247	5,273	5,267	5,274	5,282	5,290	5,299	5,293	5,337	5,317	5,305	5,332	5,323

ncludes other industries not shown separately.

preliminary.

TE: See "Notes on the data" for a description of the most recent benchmark revision.

13. Average weekly hours of production or nonsupervisory workers on private nonfarm payrolls, by industry, monthly data seasonally adjusted

Industry	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.[P]	Sept.[P]
PRIVATE SECTOR	34.7	34.5	34.4	34.5	34.4	34.3	33.8	34.5	34.5	34.3	34.2	34.7	34.2	34.4	34.7
GOODS-PRODUCING	41.4	41.0	40.9	41.0	40.9	40.6	39.7	41.1	40.8	41.0	40.9	41.1	41.0	41.1	41.1
MINING	44.8	44.7	44.8	44.9	44.2	44.7	44.1	45.3	45.7	45.0	45.2	45.9	44.9	44.7	45.0
MANUFACTURING	42.0	41.6	41.5	41.4	41.5	41.2	40.0	41.4	41.3	41.5	41.7	41.8	41.6	41.7	41.8
Overtime hours	4.7	4.4	4.4	4.3	4.3	4.2	4.1	4.3	4.3	4.6	4.6	4.6	4.4	4.5	4.5
Durable goods	42.9	42.4	42.3	42.3	42.3	41.9	40.9	42.2	42.0	42.4	42.5	42.6	42.3	42.6	42.6
Overtime hours	5.0	4.7	4.7	4.6	4.6	4.5	4.4	4.6	4.5	4.9	5.1	5.0	4.7	4.8	4.8
Lumber and wood products	41.2	40.6	40.6	40.7	40.7	40.1	39.1	40.6	40.6	40.8	41.0	41.2	41.1	40.9	41.2
Furniture and fixtures	40.4	39.6	39.4	39.4	39.6	39.4	35.7	39.1	39.4	39.2	39.7	39.5	39.7	39.6	39.6
Stone, clay, and glass products	43.4	43.0	43.1	43.1	42.9	42.9	42.1	43.5	43.2	43.4	43.2	43.5	43.2	43.3	43.4
Primary metal industries	44.7	44.0	43.6	43.8	43.9	43.7	43.2	44.1	43.9	43.9	44.2	44.2	44.0	44.4	44.5
Blast furnaces and basic steel products	44.9	44.4	43.9	44.2	44.2	44.2	44.3	44.9	44.5	44.1	44.4	44.5	44.3	44.2	44.0
Fabricated metal products	42.9	42.3	42.4	42.2	42.2	42.0	41.0	42.0	42.0	42.3	42.6	42.6	42.4	42.4	42.4
Industrial machinery and equipment	43.7	43.4	43.2	43.1	43.3	42.9	42.1	43.0	43.0	43.2	43.0	43.3	43.1	42.8	42.8
Electronic and other electrical equipment	42.2	41.6	41.7	42.0	41.6	41.2	40.3	41.6	41.4	40.9	41.3	41.6	41.2	41.7	41.6
Transportation equipment	44.3	43.8	43.6	43.4	43.8	42.7	42.4	43.1	42.2	44.6	44.5	44.4	43.9	44.9	44.9
Motor vehicles and equipment	46.0	44.9	44.5	44.3	44.8	43.8	43.3	43.7	42.1	46.0	46.5	45.7	45.5	46.4	45.9
Instruments and related products	41.7	41.4	41.4	41.4	41.4	41.2	40.2	41.8	41.7	41.4	41.6	41.9	41.4	41.8	42.0
Miscellaneous manufacturing	40.0	39.9	39.8	39.7	39.6	39.5	37.7	39.5	39.7	39.6	39.9	39.7	39.7	39.8	39.7
Nondurable goods	40.9	40.5	40.4	40.3	40.3	40.2	38.7	40.5	40.5	40.4	40.6	40.7	40.5	40.5	40.7
Overtime hours	4.3	4.0	3.9	3.9	3.9	3.9	3.8	4.0	4.0	4.2	4.0	4.2	4.1	4.0	4.0
Food and kindred products	41.3	41.1	41.1	40.9	40.8	40.6	39.9	41.2	41.1	41.1	41.2	41.0	40.8	40.6	41.1
Textile mill products	41.6	40.8	40.6	40.4	40.5	40.3	36.1	40.5	40.8	40.3	40.6	40.9	40.8	40.9	40.7
Apparel and other textile products	37.5	37.0	36.8	36.7	36.8	36.8	33.5	36.8	36.9	36.5	37.2	37.6	37.1	37.3	37.4
Paper and allied products	43.9	43.1	43.0	42.8	42.9	42.9	41.5	43.1	43.1	43.4	43.4	43.5	43.4	43.2	43.5
Printing and publishing	38.6	38.2	38.1	38.0	38.1	37.8	37.2	38.2	38.2	38.1	38.3	38.1	38.2	38.3	38.5
Chemicals and allied products	43.2	43.2	43.1	43.2	43.1	43.1	42.5	43.2	43.1	42.9	43.2	43.4	43.3	43.3	43.0
Rubber and miscellaneous plastics products	42.2	41.5	41.4	41.4	41.2	41.6	40.3	41.3	41.3	41.4	41.7	41.5	41.5	41.7	41.7
Leather and leather products	38.5	38.0	38.0	37.8	37.7	37.7	34.8	37.6	37.8	37.6	38.3	38.5	38.3	38.8	38.8
SERVICE-PRODUCING	32.8	32.7	32.7	32.7	32.7	32.6	32.2	32.7	32.8	32.5	32.5	33.0	32.5	32.7	33.0
TRANSPORTATION AND PUBLIC UTILITIES	39.9	39.5	39.5	39.5	39.6	39.6	38.8	39.8	39.9	39.4	39.2	40.0	39.4	39.8	40.2
WHOLESALE TRADE	38.4	38.3	38.2	38.3	38.2	38.2	37.8	38.3	38.3	38.1	38.0	38.7	38.0	38.3	38.5
RETAIL TRADE	28.9	28.8	28.8	28.8	28.9	28.7	28.3	28.8	28.9	28.6	28.8	29.0	28.6	28.8	29.0

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

14. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry, seasonally adjusted

Industry	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.[P]	Sept.[P]
PRIVATE SECTOR (in current dollars)	$ 11.12	$ 11.44	$11.52	$11.55	$11.59	$11.61	$11.62	$11.65	$11.68	$11.72	$11.74	$11.83	$11.81	$11.87	$11.92
Goods-producing	12.71	13.04	13.12	13.13	13.18	13.19	13.30	13.26	13.25	13.40	13.38	13.45	13.48	13.56	13.59
Mining	14.88	15.30	15.41	15.45	15.47	15.51	15.48	15.49	15.46	15.44	15.45	15.59	15.62	15.63	15.80
Construction	14.73	15.08	15.17	15.18	15.20	15.15	15.25	15.23	15.24	15.28	15.31	15.40	15.46	15.49	15.57
Manufacturing	12.07	12.37	12.43	12.46	12.49	12.51	12.63	12.56	12.55	12.74	12.73	12.77	12.79	12.89	12.90
Excluding overtime	11.43	11.74	11.79	11.83	11.86	11.89	12.00	11.93	11.91	12.09	12.06	12.12	12.14	12.22	12.22
Service-producing	10.56	10.89	10.96	11.03	11.03	11.08	11.06	11.11	11.16	11.15	11.18	11.29	11.25	11.30	11.37
Transportation and public utilities	13.86	14.23	14.33	14.40	14.42	14.39	14.39	14.43	14.47	14.49	14.50	14.55	14.52	14.61	14.61
Wholesale trade	12.06	12.43	12.51	12.54	12.55	12.60	12.58	12.63	12.70	12.71	12.71	12.91	12.81	12.88	13.00
Retail trade	7.49	7.69	7.76	7.76	7.78	7.81	7.83	7.85	7.88	7.90	7.93	8.00	7.96	8.01	8.00
Finance, insurance, and real estate	11.83	12.33	12.44	12.52	12.52	12.55	12.55	12.60	12.68	12.64	12.76	12.86	12.77	12.84	12.96
Services	11.04	11.39	11.46	11.52	11.54	11.57	11.59	11.62	11.67	11.65	11.69	11.79	11.78	11.81	11.90
PRIVATE SECTOR (in constant (1982) dollars)	7.40	7.40	7.42	7.42	7.44	7.44	7.41	7.42	7.40	7.40	7.39	7.44	7.41	7.45	–

– Data not available.

[P] = preliminary.

15. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.[p]	Sept.[p]
PRIVATE SECTOR	$ 11.12	$ 11.44	$11.55	$11.60	$11.59	$11.61	$11.71	$11.69	$11.69	$11.75	$11.73	$11.76	$11.74	$11.76	$11.96
MINING	14.88	15.30	15.35	15.34	15.35	15.54	15.63	15.62	15.51	15.55	15.44	15.57	15.53	15.51	15.82
CONSTRUCTION	14.73	15.08	15.34	15.34	15.24	15.13	15.24	15.14	15.13	15.19	15.27	15.32	15.48	15.55	15.74
MANUFACTURING	12.07	12.37	12.47	12.43	12.49	12.60	12.66	12.57	12.51	12.73	12.71	12.75	12.79	12.79	12.90
Durable goods	12.68	12.93	13.05	12.97	13.02	13.13	13.17	13.12	13.04	13.26	13.27	13.32	13.35	13.38	13.52
Lumber and wood products	9.84	10.12	10.28	10.27	10.22	10.29	10.28	10.23	10.29	10.33	10.34	10.45	10.47	10.50	10.56
Furniture and fixtures	9.55	9.82	9.95	9.92	9.94	10.00	10.00	9.95	10.00	10.06	10.08	10.11	10.13	10.17	10.23
Stone, clay, and glass products	12.13	12.41	12.54	12.53	12.56	12.53	12.60	12.56	12.59	12.76	12.74	12.81	12.93	12.91	13.05
Primary metal industries	14.34	14.62	14.71	14.64	14.73	14.70	14.85	14.71	14.74	15.00	14.83	14.92	15.09	15.01	15.16
Blast furnaces and basic steel products	16.85	17.35	17.56	17.43	17.55	17.35	17.66	17.50	17.61	17.92	17.57	17.69	18.01	17.89	18.32
Fabricated metal products	11.93	12.12	12.21	12.17	12.24	12.39	12.35	12.29	12.28	12.43	12.42	12.49	12.48	12.52	12.64
Industrial machinery and equipment	13.00	13.24	13.34	13.33	13.38	13.46	13.44	13.40	13.36	13.44	13.45	13.52	13.55	13.64	13.81
Electronic and other electrical equipment	11.50	11.67	11.78	11.76	11.80	11.91	11.92	11.85	11.89	11.97	12.07	12.16	12.23	12.23	12.30
Transportation equipment	16.51	16.75	16.96	16.75	16.80	16.90	16.91	16.98	16.68	17.26	17.23	17.26	17.32	17.29	17.47
Motor vehicles and equipment	17.02	17.36	17.58	17.51	17.55	17.60	17.48	17.54	17.11	17.97	17.92	17.91	17.97	17.87	18.13
Instruments and related products	12.47	12.71	12.81	12.77	12.83	12.89	12.99	12.94	12.97	13.03	13.04	13.09	13.18	13.18	13.29
Miscellaneous manufacturing	9.67	10.06	10.12	10.14	10.16	10.28	10.32	10.26	10.25	10.35	10.36	10.35	10.39	10.43	10.53
Nondurable goods	11.24	11.58	11.65	11.67	11.73	11.84	11.92	11.80	11.83	11.93	11.89	11.93	12.01	11.96	12.03
Food and kindred products	10.66	10.94	10.97	10.92	11.06	11.18	11.09	11.05	11.11	11.21	11.20	11.24	11.27	11.18	11.19
Tobacco products	19.07	19.48	17.68	18.19	19.62	17.84	18.51	18.32	19.55	20.55	21.19	21.52	21.09	20.41	19.22
Textile mill products	9.13	9.41	9.50	9.48	9.53	9.57	9.56	9.54	9.55	9.65	9.61	9.67	9.67	9.70	9.77
Apparel and other textile products	7.34	7.64	7.71	7.73	7.77	7.82	7.87	7.81	7.85	7.94	7.93	7.98	7.94	7.94	8.01
Paper and allied products	13.77	14.23	14.33	14.31	14.38	14.51	14.59	14.43	14.45	14.61	14.59	14.64	14.79	14.71	14.76
Printing and publishing	12.14	12.33	12.50	12.43	12.40	12.49	12.48	12.48	12.52	12.52	12.53	12.53	12.62	12.69	12.83
Chemicals and allied products	15.13	15.63	15.72	15.81	15.90	16.06	16.10	15.98	16.03	16.17	16.07	16.15	16.19	16.25	16.30
Petroleum and coal products	19.07	19.36	19.40	19.68	19.45	19.43	19.40	19.53	19.20	19.30	18.97	18.86	19.00	18.95	19.34
Rubber and miscellaneous plastics products	10.70	10.91	10.99	11.01	11.01	11.15	11.12	11.14	11.14	11.19	11.19	11.16	11.24	11.23	11.30
Leather and leather products	7.97	8.17	8.24	8.23	8.23	8.34	8.51	8.42	8.46	8.41	8.43	8.48	8.44	8.66	8.66
TRANSPORTATION AND PUBLIC UTILITIES	13.86	14.23	14.35	14.46	14.46	14.44	14.45	14.45	14.44	14.49	14.43	14.47	14.51	14.55	14.66
WHOLESALE TRADE	12.06	12.43	12.51	12.55	12.53	12.61	12.65	12.66	12.67	12.76	12.72	12.85	12.81	12.82	13.00
RETAIL TRADE	7.49	7.69	7.77	7.77	7.78	7.80	7.89	7.87	7.90	7.92	7.92	7.97	7.92	7.95	8.04
FINANCE, INSURANCE, AND REAL ESTATE	11.83	12.33	12.40	12.53	12.49	12.57	12.62	12.71	12.74	12.76	12.75	12.76	12.69	12.71	12.91
SERVICES	11.04	11.39	11.45	11.54	11.57	11.66	11.73	11.72	11.72	11.72	11.68	11.67	11.62	11.63	11.90

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

16. Average weekly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.[p]	Sep
PRIVATE SECTOR															
Current dollars	$385.86	$394.68	$399.63	$402.52	$398.70	$400.55	$391.11	$398.63	$399.80	$400.68	$402.34	$410.42	$406.20	$409.25	$41
Seasonally adjusted	–	–	396.29	398.48	398.70	398.22	392.76	401.93	402.96	402.00	401.17	410.50	403.90	409.17	41
Constant (1982) dollars	256.73	255.29	257.16	258.36	256.07	257.26	249.75	253.74	253.36	252.79	253.20	258.13	255.15	256.74	
MINING	666.62	683.91	696.89	696.44	687.68	699.30	684.59	704.46	697.95	698.20	697.89	716.22	695.74	701.05	72
CONSTRUCTION	573.00	585.10	612.07	615.13	588.26	576.45	559.31	576.83	576.45	586.33	592.48	606.67	616.10	618.89	62
MANUFACTURING															
Current dollars	506.94	514.59	523.74	518.33	523.33	529.20	503.87	519.14	517.90	524.48	528.74	534.23	525.67	534.62	54
Constant (1982) dollars	337.29	332.85	337.03	332.69	336.11	339.88	321.76	330.45	328.20	330.90	332.75	335.99	330.19	335.40	
Durable goods	543.97	548.23	558.54	552.52	557.26	561.96	538.65	552.35	547.68	557.76	562.65	568.76	556.70	568.65	58
Lumber and wood products	405.41	410.87	422.51	423.12	415.95	415.72	396.81	407.15	415.72	420.43	426.01	434.72	426.13	434.70	44
Furniture and fixtures	385.82	388.87	399.00	397.79	399.59	407.00	358.00	383.08	390.00	389.32	394.13	399.35	397.10	407.82	41
Stone, clay, and glass products	526.44	533.63	551.76	548.81	542.59	533.78	515.34	532.54	537.59	551.23	555.46	564.92	562.46	569.33	57
Primary metal industries	641.00	643.28	644.30	639.77	652.54	652.68	644.49	648.71	645.61	654.00	654.00	660.96	657.92	660.44	67
Blast furnaces and basic steel products	756.57	770.34	776.15	766.92	782.73	773.81	782.34	780.50	780.12	788.48	778.35	787.21	799.64	787.16	81
Fabricated metal products	511.80	512.68	523.81	518.44	523.87	535.25	505.12	516.18	514.53	519.57	525.37	533.32	519.17	532.10	54
Industrial machinery and equipment	568.10	574.62	578.96	575.86	583.37	593.59	568.51	580.22	578.49	573.89	578.35	585.42	574.52	582.43	59
Electronic and other electrical equipment	485.30	485.47	497.12	496.27	499.14	503.79	481.57	491.78	492.25	485.98	496.08	505.86	495.32	507.55	51
Transportation equipment	731.39	733.65	753.02	733.65	744.24	741.91	715.29	735.23	705.56	761.17	766.74	768.07	739.56	769.41	79
Motor vehicles and equipment	782.92	779.46	799.89	784.45	796.77	800.80	758.63	773.51	723.75	815.84	822.53	818.49	779.90	813.09	83
Instruments and related products	520.00	526.19	531.62	528.68	536.29	542.67	524.80	540.89	543.44	538.14	541.16	549.78	540.38	549.61	55
Miscellaneous manufacturing	386.80	401.39	407.84	408.64	410.46	412.23	388.03	403.22	407.95	407.79	410.26	410.90	404.17	416.16	42
Nondurable goods	459.72	468.99	476.49	473.80	478.58	483.07	457.73	473.18	476.75	477.20	480.36	486.74	484.00	489.16	49
Food and kindred products	440.26	449.63	461.84	452.09	457.88	461.73	435.84	446.42	449.96	450.64	455.84	459.72	460.94	463.97	47
Tobacco products	749.45	771.41	707.20	734.88	798.53	697.54	662.66	710.82	772.23	809.67	847.60	884.47	816.18	816.40	78
Textile mill products	379.81	383.93	390.45	384.89	389.78	388.54	344.16	382.55	388.69	386.97	390.17	400.34	388.73	400.61	40
Apparel and other textile products	275.25	282.68	286.81	285.24	288.27	291.69	262.07	287.41	290.45	289.02	295.79	302.44	292.19	298.54	30
Paper and allied products	604.50	613.31	621.92	616.76	625.53	634.09	608.40	617.60	618.46	626.77	627.37	635.38	638.93	636.94	64
Printing and publishing	468.60	471.01	482.50	476.07	479.88	480.87	458.02	472.99	478.26	474.51	476.14	474.89	478.30	488.57	49
Chemicals and allied products	653.62	675.22	679.10	682.99	690.06	705.03	682.64	688.74	690.89	692.08	691.01	700.91	694.55	697.13	70
Petroleum and coal products	846.71	846.03	849.72	871.82	851.91	839.38	836.14	835.88	825.60	837.62	808.12	843.04	839.80	831.91	86
Rubber and miscellaneous plastics products	451.54	452.77	459.38	456.92	460.22	470.53	448.14	460.08	460.08	459.91	465.50	465.37	458.59	467.17	47
Leather and leather products	306.85	310.46	318.06	314.39	312.74	317.75	294.45	312.38	318.94	315.38	322.03	331.57	318.19	336.87	34
TRANSPORTATION AND PUBLIC UTILITIES	553.01	526.09	569.70	574.06	571.17	571.82	556.33	569.33	570.38	568.01	567.10	580.25	577.50	584.91	59
WHOLESALE TRADE	463.10	476.07	479.13	483.18	478.65	482.96	475.64	481.08	482.73	486.16	485.90	498.58	487.68	492.29	50
RETAIL TRADE	216.46	221.47	224.55	223.78	222.51	226.20	216.98	221.93	225.15	224.93	227.30	234.32	232.85	234.53	23
FINANCE, INSURANCE, AND REAL ESTATE	423.51	442.65	442.68	456.09	444.64	448.75	448.01	453.75	454.82	454.26	453.90	465.74	450.50	453.75	47
SERVICES	358.80	369.04	369.84	376.20	373.71	376.62	373.01	377.38	377.38	377.38	376.10	382.78	377.65	380.30	38

– Data not available.

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

17. Diffusion indexes of employment change, seasonally adjusted

[In percent]

Timespan and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov	Dec.
	Private nonfarm payrolls, 356 industries											
Over 1-month span:												
1994	58.8	62.1	66.0	64.2	60.3	63.5	61.5	62.1	60.8	61.5	63.1	63.9
1995	63.2	59.3	54.9	54.6	51.4	55.1	54.1	57.4	51.8	54.8	56.3	59.4
1996	52.4	63.2	60.0	52.4	62.2	57.4	55.8	55.2	50.1	–	–	–
Over 3-month span:												
1994	67.1	69.5	70.4	68.7	66.4	66.0	68.5	69.5	65.3	65.6	68.0	67.8
1995	66.6	63.2	56.9	53.4	54.2	52.9	56.6	53.8	54.2	54.6	58.3	57.0
1996	60.7	61.8	61.2	60.0	61.0	63.6	59.1	53.7	–	–	–	–
Over 6-month span:												
1994	70.8	71.6	69.0	69.8	69.5	69.5	69.2	69.0	69.2	68.5	69.1	66.6
1995	66.3	60.8	58.7	54.4	53.5	54.1	53.1	56.3	55.9	54.1	56.2	61.8
1996	60.3	62.9	63.8	63.8	62.5	57.7	–	–	–	–	–	–
Over 12-month span:												
1994	70.2	71.6	71.8	71.8	72.1	71.8	71.5	72.1	70.1	69.4	65.7	65.0
1995	62.6	60.8	60.1	61.2	58.1	57.7	54.5	58.7	58.6	57.3	59.4	59.8
1996	61.0	62.2	61.4	–	–	–	–	–	–	–	–	–
	Manufacturing payrolls, 139 industries											
Over 1-month span:												
1994	56.5	60.1	59.7	58.6	53.2	57.9	57.6	53.6	55.8	54.7	57.2	59.4
1995	56.8	55.0	46.0	45.3	39.2	40.3	45.0	45.0	42.4	45.3	46.4	47.5
1996	42.1	48.2	48.2	39.6	53.2	49.6	43.9	47.5	42.1	–	–	–
Over 3-month span:												
1994	63.7	64.4	66.2	60.8	56.1	56.8	60.8	58.6	54.0	56.1	60.1	60.8
1995	60.4	51.8	43.5	34.9	33.1	32.0	33.1	35.6	38.8	39.6	40.6	38.8
1996	38.8	39.9	37.8	43.2	45.3	47.5	42.8	36.7	–	–	–	–
Over 6-month span:												
1994	62.2	64.4	60.4	61.5	59.0	56.8	56.5	57.2	60.1	55.8	59.7	55.8
1995	55.4	45.0	38.5	33.5	27.7	28.8	28.8	30.6	33.5	33.1	34.2	38.8
1996	32.0	37.4	37.1	38.1	42.1	36.0	–	–	–	–	–	–
Over 12-month span:												
1994	57.9	58.6	60.8	60.8	60.8	63.3	59.4	60.1	57.2	55.8	49.6	47.5
1995	42.1	40.3	39.9	40.6	34.5	31.7	25.9	28.8	28.1	24.1	27.0	29.1
1996	33.1	34.5	33.8	–	–	–	–	–	–	–	–	–

– Data not available.

NOTE: Figures are the percent of industries with employment increasing plus one-half of the industries with unchanged employment, where 50 percent indicates an equal balance between industries with increasing and decreasing employment. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

18. Annual data: Employment status of the population

[Numbers in thousands]

Employment status	1987	1988	1989	1990	1991	1992	1993	1994	1995
Civilian noninstitutional population	182,753	184,613	186,393	189,164	190,925	192,805	194,838	196,814	198,584
Civilian labor force	119,865	121,669	123,869	125,840	126,346	128,105	129,200	131,056	132,304
Labor force participation rate	65.6	65.9	66.5	66.5	66.2	66.4	66.3	66.6	66.6
Employed	112,440	114,968	117,342	118,793	117,718	118,492	120,259	123,060	124,900
Employment-population ratio	61.5	62.3	63.0	62.8	61.7	61.5	61.7	62.5	62.9
Agriculture	3,208	3,169	3,199	3,223	3,269	3,247	3,115	3,409	3,440
Nonagricultural industries	109,232	111,800	114,142	115,570	114,499	115,245	117,144	119,651	121,460
Unemployed	7,425	6,701	6,528	7,047	8,628	9,613	8,940	7,996	7,404
Unemployment rate	6.2	5.5	5.3	5.6	6.8	7.5	6.9	6.1	5.6
Not in the labor force	62,888	62,944	62,523	63,324	64,578	64,700	65,638	65,758	66,280

19. Annual data: Employment levels by industry

[In thousands]

Industry	1987	1988	1989	1990	1991	1992	1993	1994	1995
Total employment	101,958	105,210	107,895	109,419	108,256	108,604	110,730	114,172	117,203
Private sector	84,948	87,824	90,117	91,115	89,854	89,959	91,889	95,044	97,892
Goods-producing	24,674	25,125	25,254	24,905	23,745	23,231	23,352	23,908	24,206
Mining	717	713	692	709	689	635	610	601	580
Construction	4,958	5,098	5,171	5,120	4,650	4,492	4,668	4,986	5,158
Manufacturing	18,999	19,314	19,391	19,076	18,406	18,104	18,075	18,321	18,468
Service-producing	77,284	80,086	82,642	84,514	84,511	85,373	87,378	90,264	92,997
Transportation and public utilities	5,362	5,514	5,625	5,793	5,762	5,721	5,829	5,993	6,165
Wholesale trade	5,848	6,030	6,187	6,173	6,081	5,997	5,981	6,162	6,412
Retail trade	18,422	19,023	19,475	19,601	19,284	19,356	19,773	20,507	21,173
Finance, insurance, and real estate	6,533	6,630	6,668	6,709	6,646	6,602	6,757	6,896	6,830
Services	24,110	25,504	26,907	27,934	28,336	29,052	30,197	31,579	33,107
Government	17,010	17,386	17,779	18,304	18,402	18,645	18,841	19,128	19,310
Federal	2,943	2,971	2,988	3,085	2,966	2,969	2,915	2,870	2,822
State	3,967	4,076	4,182	4,305	4,355	4,408	4,488	4,576	4,642
Local	10,100	10,339	10,609	10,914	11,081	11,267	11,438	11,682	11,847

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

20. Annual data: Average hours and earnings of production or nonsupervisory workers on nonfarm payrolls, by industry

Industry	1987	1988	1989	1990	1991	1992	1993	1994	1995
Private sector:									
Average weekly hours	34.8	34.7	34.6	34.5	34.3	34.4	34.5	34.7	34.5
Average hourly earnings (in dollars)	8.98	9.28	9.66	10.01	10.32	10.57	10.83	11.12	11.44
Average weekly earnings (in dollars)	312.50	322.02	334.24	345.35	353.98	363.61	373.64	385.86	394.68
Mining:									
Average weekly hours	42.4	42.3	43.0	44.1	44.4	43.9	44.3	44.8	44.7
Average hourly earnings (in dollars)	12.54	12.80	13.26	13.68	14.19	14.54	14.60	14.88	15.30
Average weekly earnings (in dollars)	531.70	541.44	570.18	603.29	630.04	638.31	646.78	666.62	683.91
Construction:									
Average weekly hours	37.8	37.9	37.9	38.2	38.1	38.0	38.5	38.9	38.8
Average hourly earnings (in dollars)	12.71	13.08	13.54	13.77	14.00	14.15	14.38	14.73	15.08
Average weekly earnings (in dollars)	480.44	495.73	513.17	526.01	533.40	537.70	553.63	573.00	585.10
Manufacturing:									
Average weekly hours	41.0	41.1	41.0	40.8	40.7	41.0	41.4	42.0	41.6
Average hourly earnings (in dollars)	9.91	10.19	10.48	10.83	11.18	11.46	11.74	12.07	12.37
Average weekly earnings (in dollars)	406.31	418.81	429.68	441.86	455.03	469.86	486.04	506.94	514.59
Transportation and public utilities:									
Average weekly hours	39.2	38.8	38.9	38.9	38.7	38.9	39.6	39.9	39.5
Average hourly earnings (in dollars)	12.03	12.26	12.60	12.97	13.22	13.45	13.62	13.86	14.23
Average weekly earnings (in dollars)	471.58	475.69	490.14	504.53	511.61	523.21	539.35	553.01	562.09
Wholesale trade:									
Average weekly hours	38.1	38.1	38.0	38.1	38.1	38.2	38.2	38.4	38.3
Average hourly earnings (in dollars)	9.59	9.98	10.39	10.79	11.15	11.39	11.74	12.06	12.43
Average weekly earnings (in dollars)	365.38	380.24	394.82	411.10	424.82	435.10	448.47	463.10	476.07
Retail trade:									
Average weekly hours	29.2	29.1	28.9	28.8	28.6	28.8	28.8	28.9	28.8
Average hourly earnings (in dollars)	6.12	6.31	6.53	6.75	6.94	7.12	7.29	7.49	7.69
Average weekly earnings (in dollars)	178.70	183.62	188.72	194.40	198.48	205.06	209.95	216.46	221.47
Finance, insurance, and real estate:									
Average weekly hours	36.3	35.9	35.8	35.8	35.7	35.8	35.8	35.8	35.9
Average hourly earnings (in dollars)	8.73	9.06	9.53	9.97	10.39	10.82	11.35	11.83	12.33
Average weekly earnings (in dollars)	316.90	325.25	341.17	356.93	370.92	387.36	406.33	423.51	442.65
Services:									
Average weekly hours	32.5	32.6	32.6	32.5	32.4	32.5	32.5	32.5	32.4
Average hourly earnings (in dollars)	8.49	8.88	9.38	9.83	10.23	10.54	10.78	11.04	11.39
Average weekly earnings (in dollars)	275.93	289.49	305.79	319.48	331.45	342.55	350.35	358.80	369.04

21. Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1994			1995				1996		Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended June 1996	12 months ended June 1996
Civilian workers[2]	122.1	123.3	123.8	124.8	125.6	126.6	127.2	128.3	129.2	0.7	2.9
Workers, by occupational group:											
White-collar workers	122.6	123.9	124.4	125.5	126.3	127.4	128.0	129.1	130.0	.7	2.9
Professional specialty and technical	124.2	125.7	126.2	127.0	127.5	128.9	129.4	130.6	131.4	.6	3.1
Executive, administrative, and managerial	121.6	122.9	123.6	125.2	125.7	126.7	127.4	128.5	129.1	.5	2.7
Administrative support, including clerical	123.5	124.6	125.2	126.5	127.3	128.1	129.0	130.1	130.8	.5	2.7
Blue-collar workers	121.3	122.4	122.7	123.6	124.5	125.2	125.8	126.7	127.7	.8	2.6
Service occupations	122.1	123.5	124.3	125.0	125.8	126.7	127.4	128.0	128.7	.5	2.3
Workers, by industry division:											
Goods-producing	123.0	123.9	124.4	125.3	126.0	126.5	127.4	128.3	129.3	.8	2.6
Manufacturing	123.5	124.4	125.1	126.2	126.9	127.3	128.3	129.3	130.4	.9	2.8
Service-producing	121.7	123.1	123.6	124.6	125.5	126.6	127.1	128.2	129.1	.7	2.9
Services	124.2	125.8	126.4	127.2	127.8	128.9	129.4	130.4	131.2	.6	2.7
Health services	126.6	127.8	128.5	129.4	130.2	131.1	132.0	132.5	133.4	.7	2.5
Hospitals	126.4	127.5	128.4	128.8	129.7	130.4	131.4	132.3	132.9	.5	2.5
Educational services	123.6	126.0	126.4	126.9	127.4	129.8	130.2	130.5	130.8	.2	2.7
Public administration[3]	122.2	123.7	124.2	125.4	126.1	127.4	128.3	129.2	129.6	.3	2.8
Nonmanufacturing	121.7	123.0	123.4	124.4	125.2	126.3	126.8	127.9	128.8	.7	2.9
Private industry workers	122.0	123.0	123.5	124.5	125.4	126.2	126.7	127.9	129.0	.9	2.9
Excluding sales occupations	122.3	123.4	123.9	125.0	125.7	126.5	127.1	128.3	129.2	.7	2.8
Workers, by occupational group:											
White-collar workers	122.5	123.5	124.1	125.3	126.2	127.0	127.6	129.0	130.0	.8	3.0
Excluding sales occupations	123.3	124.4	125.1	126.3	127.0	127.8	128.6	129.9	130.7	.6	2.9
Professional specialty and technical occupations	125.3	126.3	126.8	127.7	128.4	129.3	129.9	131.6	132.6	.8	3.3
Executive, administrative, and managerial occupations	121.3	122.6	123.3	124.9	125.4	126.2	126.9	128.0	128.8	.6	2.7
Sales occupations	118.8	119.2	119.6	120.2	122.4	123.2	123.2	124.8	126.9	1.7	3.7
Administrative support occupations, including clerical	123.5	124.5	125.1	126.5	127.3	128.1	129.0	130.1	130.8	.5	2.7
Blue-collar workers	121.2	122.3	122.6	123.5	124.4	125.1	125.6	126.6	127.6	.8	2.6
Precision production, craft, and repair occupations	121.2	122.5	122.5	123.4	124.4	125.4	125.7	126.5	127.7	.9	2.7
Machine operators, assemblers, and inspectors	122.2	122.9	123.4	124.2	124.8	125.1	126.2	127.1	128.1	.8	2.6
Transportation and material moving occupations	119.1	120.3	120.6	121.8	122.4	122.9	123.0	123.9	124.7	.6	1.9
Handlers, equipment cleaners, helpers, and laborers	121.4	122.7	122.9	124.1	125.3	125.9	126.8	128.5	129.3	.6	3.2
Service occupations	121.0	121.8	122.9	123.4	124.0	124.7	125.2	125.8	126.5	.6	2.0
Production and nonsupervisory occupations[4]	121.6	122.6	123.1	124.1	125.0	125.8	126.3	127.5	128.6	.9	2.9
Workers, by industry division:											
Goods-producing	123.0	123.9	124.3	125.3	125.9	126.5	127.3	128.2	129.3	.9	2.7
Excluding sales occupations	122.5	123.5	124.0	124.9	125.6	126.1	127.0	128.0	129.0	.8	2.7
White-collar occupations	124.3	125.1	125.9	127.2	127.6	128.1	129.0	130.0	131.0	.8	2.7
Excluding sales occupations	123.2	124.1	125.0	126.2	126.7	127.2	128.2	129.4	130.2	.6	2.8
Blue-collar occupations	122.2	123.1	123.4	124.1	124.9	125.5	126.3	127.1	128.3	.9	2.7
Service occupations	123.8	126.5	126.3	127.3	127.9	128.8	129.5	129.6	130.1	.4	1.7
Construction	120.2	121.4	120.8	121.1	122.0	123.1	123.4	124.3	125.3	.8	2.7
Manufacturing	123.5	124.4	125.1	126.2	126.9	127.3	128.3	129.3	130.4	.9	2.8
White-collar occupations	123.9	124.9	126.0	127.4	128.0	128.7	129.5	130.5	131.6	.8	2.8
Excluding sales occupations	122.5	123.6	124.9	126.1	126.6	127.4	128.3	129.5	130.5	.8	3.1
Blue-collar occupations	123.2	124.0	124.5	125.3	126.0	126.3	127.5	128.4	129.5	.9	2.8
Service occupations	124.1	127.0	127.0	128.0	128.6	129.5	130.2	130.3	131.0	.5	1.9
Durables	123.8	125.1	125.8	127.0	127.7	128.2	129.0	129.7	131.2	1.2	2.7
Nondurables	122.8	123.2	123.8	124.7	125.4	125.7	127.0	128.3	128.9	.5	2.8
Service-producing	121.2	122.3	122.8	123.9	124.9	125.8	126.2	127.6	128.6	.8	3.0
Excluding sales occupations	122.1	123.3	123.8	125.0	125.8	126.6	127.2	128.4	129.2	.6	2.7
White-collar occupations	121.9	122.9	123.4	124.6	125.6	126.5	127.1	128.5	129.6	.9	3.2
Excluding sales occupations	123.4	124.6	125.1	126.4	127.1	128.0	128.7	130.0	130.9	.7	3.0
Blue-collar occupations	119.1	120.6	120.7	122.1	123.1	123.9	124.0	125.2	126.0	.6	2.4
Service occupations	120.7	121.3	122.5	123.0	123.6	124.2	124.8	125.3	126.1	.6	2.0
Transportation and public utilities	119.8	121.4	122.1	124.0	124.7	126.0	126.6	127.9	128.4	.4	3.0
Transportation	117.7	119.7	120.3	122.3	123.0	124.7	125.1	126.9	127.7	.6	3.8
Public utilities	122.6	123.6	124.4	126.1	126.8	127.5	128.5	128.9	129.1	.2	1.8
Communications	122.1	122.9	124.0	126.3	126.6	127.4	128.3	128.0	127.5	-.4	.7
Electric, gas, and sanitary services	123.2	124.4	124.8	125.9	127.0	127.7	128.7	130.1	131.1	.8	3.2
Wholesale and retail trade	119.4	120.5	120.8	121.7	122.8	123.8	124.2	125.5	126.4	.7	2.9
Excluding sales occupations	119.8	120.9	120.9	122.4	123.1	124.1	125.0	125.9	126.4	.4	2.7
Wholesale trade	119.7	120.6	121.5	123.2	124.8	126.1	127.0	127.5	129.3	1.4	3.6
Excluding sales occupations	120.3	121.3	122.0	124.4	125.1	126.2	127.1	127.4	128.7	1.0	2.9
Retail trade	119.2	120.4	120.1	120.9	121.8	122.6	122.7	124.5	124.8	.2	2.5
Food stores	120.6	120.3	120.0	120.8	120.7	121.8	122.4	123.6	124.4	.6	3.1
General merchandise stores	118.0	118.7	119.3	120.1	120.7	121.0	121.7	122.4	123.6	1.0	2.4

See footnotes at end of table.

21. Continued—Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1994			1995				1996		Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June 1996	
Finance, insurance, and real estate	117.7	118.5	118.9	120.2	121.8	122.7	123.1	124.5	126.3	1.4	3.7
Excluding sales occupations	120.3	121.5	121.8	123.7	124.6	125.4	125.7	127.5	128.5	.8	3.1
Banking, savings and loan, and other credit agencies	119.4	120.8	120.5	123.5	124.1	124.8	124.4	126.9	128.2	1.0	3.3
Insurance	120.5	121.5	122.3	123.5	124.6	124.9	125.9	127.6	128.2	.5	2.9
Services	124.9	125.9	126.6	127.5	128.2	128.9	129.4	130.7	131.7	.8	2.7
Business services	122.1	122.4	123.0	124.5	125.3	125.7	126.3	128.9	129.2	.2	3.1
Health services	127.1	127.9	128.7	129.7	130.3	131.3	132.2	132.6	133.5	.7	2.5
Hospitals	127.1	127.7	128.6	128.9	129.7	130.3	131.3	132.2	132.8	.5	2.4
Educational services	125.4	128.2	128.4	128.8	130.3	133.2	133.7	134.4	134.8	.3	3.5
Colleges and universities	126.0	128.5	128.8	129.3	131.3	134.6	135.2	135.9	136.2	.2	3.7
Nonmanufacturing	121.2	122.3	122.6	123.7	124.6	125.5	125.9	127.2	128.2	.8	2.9
White-collar workers	122.1	123.1	123.5	124.7	125.6	126.5	127.0	128.5	129.5	.8	3.1
Excluding sales occupations	123.6	124.7	125.1	126.4	127.1	128.0	128.6	130.0	130.8	.6	2.9
Blue-collar occupations	119.1	120.5	120.5	121.5	122.5	123.5	123.7	124.6	125.6	.8	2.5
Service occupations	120.7	121.3	122.4	123.0	123.5	124.2	124.7	125.3	126.0	.6	2.0
State and local government workers	123.1	125.0	125.6	126.4	126.9	128.7	129.3	129.9	130.2	.2	2.6
Workers, by occupational group:											
White-collar workers	122.9	124.9	125.5	126.2	126.6	128.6	129.1	129.6	129.9	.2	2.6
Professional specialty and technical	122.7	125.0	125.5	126.0	126.3	128.4	128.8	129.1	129.5	.3	2.5
Executive, administrative, and managerial	123.4	124.7	125.3	126.9	127.4	129.1	129.9	130.7	131.0	.2	2.8
Administrative support, including clerical	123.3	124.9	125.6	126.3	126.9	128.4	129.1	130.0	130.4	.3	2.8
Blue-collar workers	122.7	124.2	124.7	125.4	126.3	127.2	128.0	129.0	129.5	.4	2.5
Workers, by industry division:											
Services	123.4	125.6	126.1	126.7	127.1	129.2	129.6	130.0	130.3	.2	2.5
Services excluding schools[5]	123.3	124.9	125.6	126.4	127.7	128.9	129.4	130.3	130.8	.4	2.4
Health services	125.2	127.2	127.7	128.4	129.8	131.0	131.6	132.5	133.1	.5	2.5
Hospitals	124.5	127.0	127.7	128.4	129.9	131.1	131.7	132.6	133.2	.5	2.5
Educational services	123.1	125.5	126.0	126.5	126.8	129.0	129.4	129.7	130.0	.2	2.5
Schools	123.4	125.9	126.3	126.8	127.1	129.4	129.8	130.0	130.3	.2	2.5
Elementary and secondary	123.8	126.3	126.5	127.1	127.4	129.8	130.1	130.2	130.5	.2	2.4
Colleges and universities	122.0	124.5	125.5	126.0	126.1	128.0	128.7	129.4	129.9	.4	3.0
Public administration[3]	122.2	123.7	124.2	125.4	126.1	127.4	128.3	129.2	129.6	.3	2.8

[1] Cost (cents per hour worked) measured in the Employment Cost Index consists of wages, salaries, and employer cost of employee benefits.

[2] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[3] Consists of legislative, judicial, administrative, and regulatory activities.

[4] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[5] Includes, for example, library, social, and health services.

22. Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1994			1995				1996		Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June 1996	
Civilian workers[1]	118.6	119.8	120.4	121.3	122.2	123.2	123.9	125.1	126.1	0.8	3.2
Workers, by occupational group:											
White-collar workers	119.7	120.8	121.5	122.4	123.1	124.3	125.1	126.3	127.3	.8	3.4
Professional specialty and technical	121.3	122.8	123.5	124.2	124.7	126.1	126.9	128.0	128.8	.6	3.3
Executive, administrative, and managerial	119.0	120.2	120.8	122.2	122.8	123.8	124.7	126.2	127.0	.6	3.4
Administrative support, including clerical	119.8	120.9	121.6	122.8	123.4	124.3	125.2	126.4	127.1	.6	3.0
Blue-collar workers	116.7	117.8	118.2	119.2	120.3	121.1	121.7	122.8	123.9	.9	3.0
Service occupations	118.1	119.4	120.4	121.2	121.8	122.8	123.4	124.2	124.9	.6	2.5
Workers, by industry division:											
Goods-producing	118.0	119.0	119.6	120.5	121.4	122.1	122.9	123.9	125.1	1.0	3.0
Manufacturing	119.0	120.0	120.8	121.9	122.9	123.5	124.3	125.4	126.5	.9	2.9
Service-producing	118.9	120.2	120.7	121.7	122.5	123.7	124.3	125.6	126.5	.7	3.3
Services	121.3	122.8	123.5	124.4	124.8	126.2	126.9	128.0	128.9	.7	3.3
Health services	123.4	124.4	125.4	126.1	126.6	127.5	128.4	129.3	130.0	.5	2.7
Hospitals	123.0	124.0	124.9	125.5	126.0	126.8	127.8	128.6	129.2	.5	2.5
Educational services	121.3	123.8	124.3	125.0	125.1	127.8	128.5	128.8	129.1	.2	3.2
Public administration[2]	118.5	119.9	120.6	121.9	122.3	123.2	124.1	124.9	125.3	.3	2.5
Nonmanufacturing	118.5	119.7	120.2	121.1	121.9	123.1	123.7	125.0	125.9	.7	3.3
Private industry workers	118.1	119.1	119.7	120.6	121.5	122.4	123.1	124.4	125.6	1.0	3.4
Excluding sales occupations	118.3	119.4	120.0	121.0	121.8	122.6	123.4	124.7	125.7	.8	3.2
Workers, by occupational group:											
White-collar workers	119.3	120.2	120.8	121.7	122.7	123.6	124.3	125.8	127.0	1.0	3.5
Excluding sales occupations	119.9	121.0	121.7	122.8	123.4	124.3	125.2	126.7	127.6	.7	3.4
Professional specialty and technical occupations	121.3	122.2	123.0	123.7	124.4	125.3	126.1	127.8	128.8	.8	3.5
Executive, administrative, and managerial occupations	118.8	120.0	120.5	121.9	122.5	123.4	124.4	125.9	126.8	.7	3.5
Sales occupations	116.2	116.5	116.7	116.9	119.3	120.5	120.4	122.0	124.4	2.0	4.3
Administrative support occupations, including clerical	119.9	120.9	121.6	122.9	123.5	124.3	125.3	126.5	127.3	.6	3.1
Blue-collar workers	116.5	117.5	118.0	119.0	120.1	120.8	121.4	122.5	123.7	1.0	3.0
Precision production, craft, and repair occupations	116.5	117.8	117.9	118.8	119.9	121.0	121.4	122.4	123.7	1.1	3.2
Machine operators, assemblers, and inspectors	117.2	118.0	118.8	119.6	120.9	121.4	122.3	123.4	124.5	.9	3.0
Transportation and material moving occupations	114.0	115.2	115.6	117.0	117.8	118.5	118.6	120.0	120.6	.5	2.4
Handlers, equipment cleaners, helpers, and laborers	117.3	117.9	118.9	120.1	121.2	121.5	122.6	124.2	125.1	.7	3.2
Service occupations	116.8	117.6	118.8	119.4	120.0	120.8	121.4	122.2	123.0	.7	2.5
Production and nonsupervisory occupations[3]	117.5	118.5	119.1	119.9	121.0	121.8	122.4	123.7	124.9	1.0	3.2
Workers, by industry division:											
Goods-producing	118.0	118.9	119.6	120.4	121.4	122.1	122.9	123.9	125.1	1.0	3.0
Excluding sales occupations	117.4	118.4	119.1	119.9	120.9	121.6	122.4	123.5	124.6	.9	3.1
White-collar occupations	120.3	121.1	122.0	123.0	123.8	124.4	125.3	126.2	127.3	.9	2.8
Excluding sales occupations	118.8	119.8	120.8	121.8	122.5	123.2	124.2	125.3	126.3	.8	3.1
Blue-collar occupations	116.6	117.5	118.1	118.8	119.9	120.7	121.4	122.4	123.7	1.1	3.2
Service occupations	117.7	120.1	119.7	120.6	121.9	122.8	123.5	124.3	124.6	.2	2.2
Construction	113.6	114.6	114.7	114.8	115.7	116.8	117.4	118.3	119.6	1.1	3.4
Manufacturing	119.0	120.0	120.8	121.9	122.9	123.5	124.3	125.4	126.5	.9	2.9
White-collar occupations	120.6	121.7	122.7	123.9	124.7	125.3	126.1	127.1	128.2	.9	2.8
Excluding sales occupations	119.1	120.2	121.4	122.4	123.2	123.9	124.8	126.0	127.0	.8	3.1
Blue-collar occupations	117.8	118.7	119.5	120.4	121.6	122.2	123.1	124.2	125.4	1.0	3.1
Service occupations	118.2	120.6	120.6	121.5	122.8	123.7	124.3	125.1	125.7	.5	2.4
Durables	118.7	119.8	120.8	121.9	122.9	123.6	124.3	125.1	126.5	1.1	2.9
Nondurables	119.5	120.3	120.8	121.9	122.9	123.3	124.4	125.8	126.5	.6	2.9
Service-producing	118.2	119.2	119.7	120.7	121.6	122.6	123.2	124.7	125.8	.9	3.5
Excluding sales occupations	119.0	120.2	120.7	121.8	122.5	123.4	124.2	125.6	126.5	.7	3.3
White-collar occupations	118.9	119.9	120.4	121.3	122.3	123.2	124.0	125.6	126.8	1.0	3.7
Excluding sales occupations	120.4	121.5	122.1	123.2	123.8	124.7	125.6	127.2	128.1	.7	3.5
Blue-collar occupations	116.2	117.5	117.6	119.2	120.3	121.1	121.4	122.7	123.5	.7	2.7
Service occupations	116.7	117.3	118.7	119.3	119.8	120.7	121.3	122.0	122.8	.7	2.5
Transportation and public utilities	117.2	118.9	119.6	121.2	122.0	122.9	123.7	124.6	125.0	.3	2.5
Transportation	114.8	116.7	117.5	119.0	119.8	121.0	121.6	122.9	123.2	.2	2.8
Public utilities	120.1	121.4	122.3	123.9	124.5	125.2	126.1	126.5	127.1	.5	2.1
Communications	119.5	121.0	122.1	124.3	124.6	125.3	126.2	126.1	126.5	.3	1.5
Electric, gas, and sanitary services	120.9	121.9	122.4	123.4	124.4	125.2	125.9	127.0	127.7	.6	2.7
Wholesale and retail trade	117.4	118.3	118.4	119.4	120.6	121.6	122.3	123.9	124.8	.7	3.5
Excluding sales occupations	117.8	118.7	118.8	120.2	120.9	121.9	123.2	124.4	124.9	.4	3.3
Wholesale trade	118.3	118.9	119.9	120.9	122.7	123.9	125.5	126.1	128.0	1.5	4.3
Excluding sales occupations	118.8	119.6	120.2	122.2	122.9	123.7	125.7	126.3	127.6	1.0	3.8
Retail trade	117.0	118.0	117.8	118.7	119.6	120.5	120.6	122.8	123.1	.2	2.9
Food stores	117.8	117.4	117.3	117.8	117.6	118.6	119.1	120.5	121.2	.6	3.1
General merchandise stores	116.4	116.5	117.5	117.9	118.5	119.0	120.1	121.0	121.7	.6	2.6

See footnotes at end of table.

22. Continued—Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1994			1995				1996		Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June 1996	
Finance, insurance, and real estate	113.2	113.8	114.2	115.0	117.0	118.0	118.4	119.8	121.9	1.8	4.2
Excluding sales occupations	116.0	117.2	117.4	119.3	120.2	121.1	121.3	123.4	124.5	.9	3.6
Banking, savings and loan, and other credit agencies	115.0	116.5	116.2	119.2	119.7	120.4	120.1	122.7	124.2	1.2	3.8
Insurance	116.8	117.7	118.6	119.8	120.8	121.1	122.2	123.6	124.1	.4	2.7
Services	121.3	122.2	123.0	123.9	124.4	125.3	126.0	127.6	128.7	.9	3.5
Business services	119.4	119.9	120.4	122.1	122.9	123.6	124.3	126.9	127.7	.6	3.9
Health services	123.5	124.3	125.4	126.2	126.7	127.5	128.4	129.3	130.1	.6	2.7
Hospitals	123.3	123.9	124.8	125.4	125.9	126.6	127.7	128.5	129.1	.5	2.5
Educational services	122.2	124.9	125.1	125.6	125.9	128.6	129.4	130.1	130.4	.2	3.6
Colleges and universities	122.2	124.5	124.9	125.5	125.9	129.0	130.1	130.6	130.9	.2	4.0
Nonmanufacturing	117.7	118.7	119.1	120.0	120.9	121.9	122.5	123.9	125.1	1.0	3.5
White-collar workers	118.9	119.7	120.2	121.1	122.1	123.1	123.8	125.4	126.6	1.0	3.7
Excluding sales occupations	120.2	121.3	121.8	122.9	123.5	124.4	125.4	126.9	127.8	.7	3.5
Blue-collar occupations	115.1	116.4	116.4	117.5	118.5	119.4	119.8	120.9	122.0	.9	3.0
Service occupations	116.7	117.3	118.6	119.2	119.8	120.6	121.2	122.0	122.7	.6	2.4
State and local government workers	120.7	122.8	123.4	124.3	124.6	126.6	127.3	127.8	128.1	.2	2.8
Workers, by occupational group:											
White-collar workers	120.9	122.9	123.6	124.4	124.8	126.8	127.4	127.9	128.2	.2	2.9
Professional specialty and technical	121.3	123.6	124.2	124.8	125.0	127.4	128.0	128.3	128.6	.2	2.9
Executive, administrative, and managerial	120.3	121.6	122.4	124.1	124.3	126.0	126.9	127.7	128.0	.2	3.0
Administrative support, including clerical	119.4	120.9	121.7	122.5	122.9	124.4	125.1	125.8	126.1	.2	2.6
Blue-collar workers	120.1	121.8	122.5	123.1	123.8	124.8	125.7	126.6	127.0	.3	2.6
Workers, by industry division:											
Services	121.3	123.6	124.2	124.9	125.1	127.6	128.2	128.6	128.9	.2	3.0
Services excluding schools[4]	121.9	123.2	124.0	125.0	125.5	126.9	127.4	128.2	128.7	.4	2.5
Health services	122.9	124.7	125.3	126.0	126.6	127.9	128.6	129.3	129.9	.5	2.6
Hospitals	122.0	124.2	125.1	125.8	126.3	127.6	128.4	129.1	129.7	.5	2.7
Educational services	121.1	123.6	124.2	124.8	124.9	127.7	128.3	128.5	128.8	.2	3.1
Schools	121.2	123.8	124.3	125.0	125.1	127.8	128.4	128.7	128.9	.2	3.0
Elementary and secondary	121.8	124.5	124.9	125.5	125.8	128.7	129.2	129.3	129.5	.2	2.9
Colleges and universities	119.2	121.5	122.5	123.2	122.9	125.0	125.9	126.8	127.1	.2	3.4
Public administration[2]	118.5	119.9	120.8	121.9	122.3	123.2	124.1	124.9	125.3	.3	2.5

[1] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[2] Consists of legislative, judicial, administrative, and regulatory activities.

[3] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[4] Includes, for example, library, social, and health services.

23. Employment Cost Index, benefits, private industry workers by occupation and industry group

[June 1989 = 100]

Series	1994			1995				1996		Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June 1996	
Private industry workers	131.7	132.8	133.0	134.5	135.1	135.6	135.9	136.6	137.4	0.6	1.7
Workers, by occupational group:											
White-collar workers	131.6	132.8	133.3	135.2	136.0	136.6	136.7	137.7	138.4	.5	1.8
Blue-collar workers	131.5	132.7	132.5	133.3	133.6	134.1	134.7	135.2	136.1	.7	1.9
Workers, by industry division:											
Goods-producing	133.9	134.8	134.8	135.9	135.9	136.2	137.1	137.7	138.6	.7	2.0
Service-producing	129.7	131.2	131.5	133.2	134.1	134.8	134.7	135.5	136.2	.5	1.6
Manufacturing	133.0	133.9	134.3	135.4	135.2	135.5	136.7	137.5	138.5	.7	2.4
Nonmanufacturing	130.8	132.2	132.3	133.9	134.7	135.4	135.3	136.0	136.7	.5	1.5

24. Employment Cost Index, private nonfarm workers by bargaining status, region, and area size

[June 1989 = 100]

Series	1994			1995				1996		Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June 1996	
COMPENSATION											
Workers, by bargaining status[1]											
Union	123.0	123.8	124.2	125.1	125.8	126.8	127.7	128.5	129.7	0.9	3.1
Goods-producing	123.8	124.4	124.7	125.2	125.9	126.7	127.5	127.9	129.0	.9	2.5
Service-producing	121.8	122.9	123.6	124.8	125.6	126.8	127.9	129.0	130.3	1.0	3.7
Manufacturing	124.8	125.3	125.8	126.3	126.6	127.1	128.1	128.8	129.8	.8	2.5
Nonmanufacturing	121.5	122.6	123.0	124.0	125.0	126.2	127.1	128.0	129.2	.9	3.4
Nonunion	121.7	122.7	123.2	124.3	125.2	126.0	126.5	127.7	128.7	.8	2.8
Goods-producing	122.6	123.6	124.1	125.2	125.9	126.4	127.2	128.3	129.4	.9	2.8
Service-producing	121.1	122.2	122.7	123.8	124.8	125.6	126.0	127.3	128.3	.8	2.8
Manufacturing	122.9	124.0	124.8	126.1	126.9	127.3	128.3	129.3	130.5	.9	2.8
Nonmanufacturing	121.1	122.2	122.5	123.6	124.5	125.3	125.7	127.0	128.0	.8	2.8
Workers, by region[1]											
Northeast	122.8	124.0	124.3	125.6	126.6	127.4	127.8	128.9	129.7	.6	2.4
South	120.8	121.8	122.5	123.7	124.3	125.2	125.6	127.0	127.8	.6	2.8
Midwest (formerly North Central)	123.6	124.6	125.0	125.8	126.9	127.7	128.3	129.5	130.7	.9	3.0
West	120.5	121.3	121.7	122.6	123.4	123.9	125.0	125.9	127.3	1.1	3.2
Workers, by area size[1]											
Metropolitan areas	121.9	122.9	123.4	124.5	125.4	126.2	126.8	128.0	129.1	.9	3.0
Other areas	122.5	123.2	123.5	124.8	125.3	126.1	126.5	127.2	128.0	.6	2.2
WAGES AND SALARIES											
Workers, by bargaining status[1]											
Union	117.6	118.6	119.1	119.8	120.6	121.5	122.2	122.8	124.2	1.1	3.0
Goods-producing	116.7	117.5	117.9	118.4	119.3	120.2	120.6	121.3	122.5	1.0	2.7
Service-producing	118.7	120.1	120.6	121.6	122.3	123.2	124.2	124.8	126.2	1.1	3.2
Manufacturing	117.8	118.5	119.2	119.8	120.5	121.3	122.0	122.9	123.9	.8	2.8
Nonmanufacturing	117.3	118.6	119.0	119.9	120.6	121.6	122.3	122.8	124.3	1.2	3.1
Nonunion	118.3	119.2	119.8	120.8	121.8	122.6	123.3	124.8	125.9	.9	3.4
Goods-producing	118.6	119.5	120.3	121.3	122.2	122.9	123.8	124.9	126.1	1.0	3.2
Service-producing	118.1	119.0	119.5	120.5	121.5	122.4	123.0	124.6	125.7	.9	3.5
Manufacturing	119.5	120.5	121.5	122.7	123.8	124.3	125.2	126.3	127.5	1.0	3.0
Nonmanufacturing	117.8	118.7	119.1	120.0	121.0	121.9	122.6	124.2	125.2	.8	3.5
Workers, by region[1]											
Northeast	118.8	120.0	120.2	121.3	122.1	123.1	123.6	124.9	126.0	.9	3.2
South	117.4	118.5	119.1	120.0	120.8	121.8	122.4	124.1	125.1	.8	3.6
Midwest (formerly North Central)	118.3	119.5	120.1	120.9	122.2	123.0	123.6	125.1	126.2	.9	3.3
West	117.9	118.1	119.0	119.9	120.9	121.4	122.7	123.3	124.2	1.2	3.2
Workers, by area size[1]											
Metropolitan areas	118.1	119.1	119.7	120.6	121.6	122.4	123.2	124.6	125.8	1.0	3.5
Other areas	118.1	118.6	119.0	120.5	121.3	122.1	122.4	123.4	124.2	.6	2.4

[1] The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see the *Monthly Labor Review* Technical Note, "Estimation procedures for the Employment Cost Index," May 1982.

25. Percent of full-time employees participating in employer-provided benefit plans, 1980–91

Item	Medium and large private establishments[1]										Small private establishments[2]	State and local governments[3]	
	1980	1981	1982	1983	1984	1985	1986	1988	1989	1991	1990	1987	1990
Time-off plans													
Participants with:													
Paid lunch time	10	10	9	11	9	10	10	11	10	8	8	[4] 17	11
Average minutes per day	–	–	25	25	26	27	27	29	26	30	37	34	36
Paid rest time	75	75	76	74	73	72	72	72	71	67	48	[4] 58	56
Average minutes per day	–	–	25	25	26	26	26	26	26	26	27	29	29
Paid funeral leave	–	–	–	–	–	88	88	85	84	80	47	56	63
Average days per occurrence	–	–	–	–	–	3.2	3.2	3.2	3.3	3.3	2.9	3.7	3.7
Paid holidays	99	99	99	99	99	98	99	96	97	92	84	81	74
Average days per year	10.1	10.2	10.0	9.8	9.8	10.1	10.0	9.4	9.2	10.2	9.5	10.9	13.6
Paid personal leave	20	23	24	25	23	26	25	24	22	21	11	38	39
Average days per year	–	–	3.8	3.7	3.6	3.7	3.7	3.3	3.1	3.3	2.8	2.7	2.9
Paid vacations	100	99	99	100	99	99	100	98	97	96	88	72	67
Paid sick leave	62	65	67	67	67	67	70	69	68	67	47	97	95
Unpaid maternity leave	–	–	–	–	–	–	–	33	37	37	17	57	51
Unpaid sick leave	–	–	–	–	–	–	–	16	18	26	8	30	33
Insurance plans													
Participants in medical care plans	97	97	97	96	97	96	95	90	92	83	69	93	93
Participants with coverage for:													
Home health care	–	–	–	37	46	56	66	76	75	81	79	76	82
Extended care facilities	58	60	62	58	62	67	70	79	80	80	83	78	79
Mental health care	98	99	99	99	99	99	99	98	97	98	98	98	99
Alcohol abuse treatment	–	–	50	53	61	68	70	80	97	97	97	87	99
Drug abuse treatment	–	–	37	43	52	61	66	74	96	96	94	86	98
Participants with employee contribution required for:													
Self coverage	26	27	27	33	36	36	43	44	47	51	42	35	38
Average monthly contribution	–	–	–	$10.13	$11.93	$12.05	$12.80	$19.29	$25.31	$26.60	$25.13	$15.74	$25.53
Family coverage	46	49	51	54	58	56	63	64	66	69	67	71	65
Average monthly contribution[5]	–	–	–	$32.51	$35.93	$38.33	$41.40	$60.07	$72.10	$96.97	$109.34	$71.89	$ 117.59
Participants in life insurance plans	96	96	96	96	96	96	96	92	94	94	64	85	88
Participants with:													
Accidental death and dismemberment insurance	69	72	72	72	74	73	72	76	71	71	78	67	67
Survivor income benefits	–	–	–	–	–	13	10	8	7	6	1	1	1
Retiree protection available	–	64	64	66	64	62	59	49	42	44	19	55	45
Participants in long-term disability insurance plans	40	41	43	45	47	48	48	42	45	40	19	31	27
Participants in sickness and accident insurance plans	54	50	51	49	51	52	49	46	43	45	26	14	21
Retirement plans													
Participants in defined benefit pension plans[6]	84	84	84	82	82	80	76	63	63	59	20	93	90
Participants with:													
Normal retirement prior to age 65	55	56	58	64	63	67	64	59	62	55	54	92	89
Early retirement available	98	98	97	97	97	97	96	98	97	98	95	90	88
Ad hoc pension increases in last 5 years	–	–	–	51	47	41	35	26	22	7	7	33	16
Terminal earnings formula	53	50	52	54	54	57	57	55	64	56	58	100	100
Benefit coordinated with Social Security	45	43	45	55	56	61	62	62	63	54	49	18	8
Participants in defined contribution plans	–	–	–	–	–	[7] 53	[7] 60	45	48	48	31	9	9
Participants in plans with tax-deferred savings arrangements	–	–	–	–	–	26	33	36	41	44	17	28	45
Other benefits													
Employees eligible for:													
Flexible benefits plans	–	–	–	–	–	–	2	5	9	10	1	5	5
Reimbursement accounts	–	–	–	–	–	–	5	12	23	36	8	5	31

[1] From 1979 to 1986, data were collected in private sector establishments with a minimum employment varying from 50 to 250 employees, depending upon industry. In addition, coverage in service industries was limited. Beginning in 1988, data were collected in all private sector establishments employing 100 workers or more in all industries.

[2] Includes private sector establishments with fewer than 100 workers.

[3] In 1987, coverage excluded local governments employing fewer than 50 workers. In 1990, coverage included all State and local governments.

[4] Data exclude college teachers.

[5] Data for 1983 refer to the average monthly employee contribution for dependent coverage, excluding the employee. Beginning in 1984, the data refer to the average monthly employee contribution for family coverage, which includes the employee.

[6] Prior to 1985, data on participation in defined benefit pension plans included a small percentage of workers participating in money purchase pension plans. Beginning in 1985, these workers were classified as participating in defined contribution plans.

[7] Includes employees who participated in Payroll-based Employee Stock Ownership Plans. Beginning in 1987, these plans were no longer available.

NOTE: Dash indicates data were not collected in this year.

26. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1995				1996						
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]	Mar.[p]	Apr.[p]	May[p]	June[p]	July[p]
Number of stoppages:													
Beginning in period	45	31	4	5	2	0	3	5	3	5	2	5	2
In effect during period	45	34	9	10	5	3	4	8	7	8	5	10	7
Workers involved:													
Beginning in period (in thousands)	322.2	191.5	11.8	41.2	4.5	0.0	34.0	20.5	138.1	5.7	15.5	23.9	3.6
In effect during period (in thousands)	322.2	206.7	29.3	62.6	51.0	46.5	36.5	54.1	147.8	10.4	20.1	44.0	24.8
Days idle:													
Number (in thousands)	3,981.0	5,771.2	509.0	995.3	940.0	391.0	634.2	254.6	1,350.3	120.5	284.2	630.1	383.8
Percent of estimated working time[1]	.02	.02	.02	.04	.04	.02	.03	.01	.05	.00	.01	.03	.02

[1] Agricultural and government employees are included in the total employed and total working time; private household, forestry, and fishery employees are excluded. An explanation of the measurement of idleness as a percentage of the total time worked is found in " 'Total economy' measures of strike idleness," *Monthly Labor Review*, October 1968, pp. 54–56.

[p] = preliminary.

27. Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS															
All items	148.2	152.4	153.2	153.7	153.6	153.5	154.4	154.9	155.7	156.3	156.6	156.7	157.0	157.3	157.8
All items (1967 = 100)	444.0	456.5	459.0	460.3	460.1	459.9	462.5	464.2	466.5	468.2	469.0	469.5	470.4	471.1	472.7
Food and beverages	144.9	148.9	149.4	149.8	149.8	150.3	151.4	151.3	152.1	152.7	152.5	153.1	153.6	154.2	155.0
Food	144.3	148.4	148.9	149.4	149.4	149.9	151.0	150.8	151.6	152.3	152.0	152.6	153.2	153.7	154.6
Food at home	144.1	148.8	149.2	149.7	149.5	150.3	151.9	151.4	152.5	153.3	152.6	153.4	154.1	154.8	155.9
Cereals and bakery products	163.0	167.5	168.4	169.0	169.0	169.5	171.5	172.1	172.0	173.3	173.6	174.2	174.8	175.0	174.7
Meats, poultry, fish, and eggs	137.2	138.8	139.5	140.8	141.7	142.0	142.8	142.4	142.6	141.8	141.2	143.1	143.9	145.6	147.2
Dairy products	131.7	132.8	132.3	133.2	133.7	135.0	136.3	137.2	136.7	137.0	137.6	139.8	142.0	144.6	146.7
Fruits and vegetables	165.0	177.7	178.1	177.2	175.2	177.9	181.5	177.7	183.7	188.4	184.1	183.4	184.0	182.1	183.6
Other foods at home	135.6	140.8	141.1	141.2	140.5	140.5	141.8	141.9	142.4	142.8	142.9	142.9	142.9	143.2	143.6
Sugar and sweets	135.2	137.5	138.4	139.2	138.4	138.5	141.4	141.6	142.3	142.2	143.5	143.7	144.6	144.6	145.4
Fats and oils	133.5	137.3	137.4	138.3	137.8	137.5	139.7	139.7	140.1	139.9	140.0	140.8	140.5	140.9	141.5
Nonalcoholic beverages	123.2	131.7	131.7	130.9	130.5	129.5	130.0	129.9	129.7	129.9	129.3	128.4	127.5	128.5	127.9
Other prepared foods	147.5	151.1	151.5	152.1	151.1	152.1	153.1	153.4	154.6	155.3	155.6	156.2	156.8	156.4	157.5
Food away from home	145.7	149.0	149.6	150.0	150.2	150.4	150.6	150.9	151.2	151.6	152.0	152.3	152.8	153.1	153.5
Alcoholic beverages	151.5	153.9	154.5	154.9	155.2	154.9	155.6	156.7	157.4	157.9	158.3	158.6	158.5	158.9	159.5
Housing	144.8	148.5	149.5	149.7	149.4	149.7	150.6	151.2	151.7	151.8	152.0	152.7	153.6	154.0	153.9
Shelter	160.5	165.7	166.8	167.3	167.3	167.4	168.6	169.4	170.1	170.1	170.1	170.7	171.9	172.3	172.0
Renters' costs (12/82 = 100)	169.4	174.3	175.1	175.3	173.8	173.2	176.6	178.8	180.4	179.7	178.9	180.0	183.0	183.4	180.9
Rent, residential	154.0	157.8	158.5	158.9	159.3	159.6	160.0	160.4	160.6	160.9	161.2	161.7	162.2	162.5	162.9
Other renters' costs	196.3	204.3	205.1	205.0	197.5	194.2	206.5	214.1	219.7	216.1	211.8	214.9	225.4	225.9	214.8
Homeowners' costs (12/82 = 100)	165.5	171.0	172.4	173.0	173.5	174.0	174.3	174.6	175.0	175.3	175.6	176.0	176.6	177.0	177.5
Owners' equivalent rent (12/82 = 100)	165.8	171.3	172.7	173.4	173.9	174.3	174.7	175.0	175.3	175.6	175.9	176.3	176.9	177.3	177.9
Household insurance	152.3	157.4	157.0	157.1	157.6	158.3	158.0	158.6	159.1	159.4	159.5	160.7	162.0	162.3	162.3
Maintenance and repairs	130.8	135.0	135.4	136.3	136.2	136.6	136.3	137.0	137.5	138.0	138.8	138.8	139.4	139.7	139.9
Maintenance and repair services	134.5	139.8	140.3	141.8	141.8	142.1	142.1	143.0	143.8	143.8	144.7	144.6	146.3	147.1	147.4
Maintenance and repair commodities	125.8	128.5	128.9	128.9	128.7	129.1	128.6	128.8	129.0	130.0	130.9	130.9	130.1	129.6	129.5
Fuel and other utilities	122.8	123.7	124.9	123.9	123.1	123.7	124.7	125.0	125.2	125.4	126.7	128.4	129.0	129.4	129.8
Fuels	111.7	111.5	113.4	111.5	110.1	110.9	112.2	112.5	111.9	112.9	114.0	116.5	117.4	117.9	118.4
Fuel oil, coal, and bottled gas	88.8	88.1	86.6	86.9	87.7	89.6	97.6	97.7	99.3	102.1	99.6	94.6	92.3	92.2	95.6
Gas (piped) and electricity	119.2	119.2	121.6	119.3	117.6	118.3	118.7	119.1	118.2	118.9	120.6	124.1	125.6	126.1	126.2
Other utilities and public services	150.2	152.8	153.2	153.5	153.6	153.9	154.4	154.9	156.4	155.4	156.9	157.6	157.5	158.0	158.3
Household furnishings and operations	121.0	123.0	123.8	123.9	123.6	123.8	124.1	124.3	124.6	124.8	124.4	124.5	124.7	124.8	125.1
Housefurnishings	111.0	111.2	111.7	111.7	111.0	111.1	111.4	111.4	111.7	111.9	111.2	111.2	111.2	111.3	111.5
Housekeeping supplies	132.3	137.1	138.3	139.2	139.8	139.8	140.4	140.4	140.9	141.4	141.0	140.8	141.1	141.1	141.2
Housekeeping services	138.5	143.7	144.6	144.7	144.9	145.3	145.7	146.3	146.6	146.6	147.3	147.8	148.6	148.6	149.4
Apparel and upkeep	133.4	132.0	132.7	134.5	133.7	130.8	130.0	131.2	134.8	134.9	133.7	130.8	128.3	128.1	131.5
Apparel commodities	130.4	128.7	129.5	131.4	130.6	127.1	126.5	127.8	131.6	131.7	130.4	127.2	124.5	124.2	127.8
Men's and boys' apparel	126.4	126.2	126.8	128.4	128.4	126.0	124.7	126.4	129.1	129.0	129.5	127.1	125.1	126.2	127.4
Women's and girls' apparel	130.9	126.9	126.9	130.6	129.5	124.7	123.4	124.6	129.9	130.2	127.7	122.8	118.5	118.1	123.6
Infants' and toddlers' apparel	128.1	127.2	131.2	131.0	129.7	128.7	131.5	134.4	133.3	133.7	130.4	129.1	125.7	125.1	131.4
Footwear	126.0	125.4	126.8	127.5	126.7	124.1	123.4	125.8	128.1	128.2	128.3	127.1	125.6	124.7	126.7
Other apparel commodities	149.5	152.4	155.3	153.1	151.3	148.6	151.7	149.7	154.7	153.5	151.7	150.8	151.5	149.3	151.9
Apparel services	155.4	157.3	157.4	157.0	157.2	157.7	158.2	158.5	158.9	158.8	159.4	159.7	159.9	160.3	160.4
Transportation	134.3	139.1	138.8	139.4	139.4	139.1	139.9	140.4	141.2	143.1	144.4	144.0	143.5	142.8	143.2
Private transportation	131.4	136.3	135.9	136.3	136.5	136.6	137.4	137.5	138.3	140.3	141.7	141.0	140.5	139.9	140.0
New vehicles	137.6	141.0	140.0	140.9	142.2	142.8	143.2	143.5	143.6	143.5	143.4	143.5	143.2	142.9	143.2
New cars	136.0	139.0	137.8	138.6	140.1	140.7	141.1	141.3	141.5	141.3	141.2	141.3	141.0	140.7	141.0
Used cars	141.7	156.5	156.5	157.2	157.8	158.2	157.9	157.5	157.3	157.4	157.6	157.2	156.9	156.6	157.0
Motor fuel	98.5	100.0	99.8	98.3	96.4	96.4	98.6	98.2	101.4	108.6	113.6	111.2	108.9	106.4	106.2
Gasoline	98.2	99.8	99.7	98.0	96.0	96.0	98.2	97.8	101.1	108.2	113.3	111.0	108.8	106.1	105.7
Maintenance and repair	150.2	154.0	155.1	155.4	155.7	155.7	156.2	156.6	156.9	157.2	157.5	157.7	158.1	158.6	160.0
Other private transportation	162.1	170.6	170.1	172.0	172.7	172.4	172.7	173.2	172.5	173.0	173.1	173.1	173.5	174.1	174.1
Other private transportation commodities	103.5	104.8	104.9	105.0	105.1	105.2	105.4	105.4	105.3	105.1	104.9	104.6	104.7	104.8	105.0
Other private transportation services	175.8	186.0	185.4	187.7	188.6	188.3	188.5	189.2	188.3	189.0	189.1	185.2	189.7	190.4	190.3
Public transportation	172.0	175.9	176.1	178.7	177.5	170.7	171.6	177.4	178.9	179.3	108.2	182.5	182.7	181.4	184.6
Medical care	211.0	220.5	222.1	222.9	223.5	223.8	225.2	226.2	226.6	227.0	227.4	227.8	228.7	229.2	229.4
Medical care commodities	200.7	204.5	204.8	205.7	206.3	206.6	207.7	208.5	208.9	209.6	209.7	210.5	211.0	211.1	211.2
Medical care services	213.4	224.2	226.1	226.9	227.4	227.8	229.3	230.3	230.7	231.1	231.6	231.9	232.9	233.4	233.6
Professional services	192.5	201.0	202.4	202.9	203.4	203.9	205.0	206.1	206.5	207.0	207.7	207.9	208.7	209.2	209.6
Hospital and related services	245.6	257.8	260.2	261.4	262.4	262.8	265.1	266.4	266.8	267.0	267.6	268.8	270.3	271.2	271.6
Entertainment	150.1	153.9	154.9	155.2	156.0	156	157.0	158.3	158.4	158.6	158.8	159.0	159.0	159.2	159.8
Entertainment commodities	136.1	138.7	139.3	139.6	140.6	140.7	141.4	142.5	142.7	142.8	142.8	142.9	142.9	143.2	143.3
Entertainment services	166.8	172.0	173.4	173.6	174.3	174.6	175.5	177.0	177.0	177.2	177.6	177.9	178.0	178.0	179.1
Other goods and services	198.5	206.9	210.2	210.7	211.2	211	212.0	212.6	213.0	213.3	214.1	214.0	214.6	216.3	218.3
Tobacco products	220.0	225.7	228.2	228.0	228.9	228.1	229.3	229.8	230.8	230.5	233.1	232.9	233.3	233.4	234.1
Personal care	144.6	147.1	147.5	148.5	148.9	148.9	149.1	149.3	149.4	149.7	150.3	149.6	150.0	150.5	150.8
Toilet goods and personal care appliances	141.5	143.1	143.0	144.4	144.8	144.1	143.7	144.1	144.0	144.2	145.3	143.9	144.4	145.0	145.1
Personal care services	147.9	151.5	152.4	153.0	153.5	154.3	155.0	155.2	155.3	155.7	155.8	155.9	156.3	156.5	157.2
Personal and educational expenses	223.2	235.5	240.7	241.3	241.6	241.8	243.0	243.7	244.1	244.6	244.8	245.1	245.8	248.7	252.1
School books and supplies	205.5	214.4	216.9	217.7	218.6	219.0	223.8	224.7	225.2	225.5	224.7	224.7	224.7	227.6	229.9
Personal and educational services	224.8	237.3	242.7	243.2	243.5	243.7	244.7	245.4	245.7	246.3	246.6	246.8	247.6	250.5	254.0

27. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.
All items	148.2	152.4	153.2	153.7	153.6	153.5	154.4	154.9	155.7	156.3	156.6	156.7	157.0	157.3	157.8
Commodities	133.8	136.4	136.8	137.2	137.2	137.0	137.8	138.0	139.2	140.2	140.4	139.9	139.5	139.5	140.3
Food and beverages	144.9	148.9	149.4	149.8	149.8	150.3	151.4	151.3	152.1	152.7	152.5	153.1	153.6	154.2	155.0
Commodities less food and beverages	126.9	128.9	129.1	129.5	129.4	128.9	129.5	129.9	131.3	132.5	133.0	131.9	130.9	130.5	131.4
Nondurables less food and beverages	128.4	129.5	130.0	130.5	130.0	128.8	129.8	130.3	132.6	134.7	135.6	133.7	132.3	131.6	133.0
Apparel commodities	130.4	128.7	129.5	131.4	130.6	127.1	126.5	127.8	131.6	131.7	130.4	127.2	124.5	124.2	127.8
Nondurables less food, beverages, and apparel	130.3	132.9	133.3	133.1	132.6	132.7	134.5	134.6	136.2	139.3	141.4	140.1	139.3	138.5	138.7
Durables	124.8	128.0	127.8	128.2	128.7	129.0	129.3	129.4	129.5	129.5	129.3	129.3	129.1	128.9	129.2
Services	163.1	168.7	170.0	170.4	170.3	170.4	171.3	172.2	172.6	172.7	173.1	173.9	174.8	175.3	175.6
Rent of shelter (12/82 = 100)	167.0	172.4	173.6	174.1	174.1	174.2	175.5	176.3	177.0	177.0	177.0	177.6	178.9	179.3	179.0
Household services less rent of shelter (12/82 = 100)	136.3	138.3	139.7	138.8	138.1	138.6	139.0	139.5	139.6	139.6	141.0	143.1	143.9	144.4	144.6
Transporatation services	168.6	175.9	175.9	177.7	178.0	176.3	176.8	178.5	178.5	179.0	179.3	179.8	180.3	180.6	181.6
Medical care services	213.4	224.2	226.1	226.9	227.4	227.8	229.3	230.3	230.7	231.1	231.6	231.9	232.9	233.4	233.6
Other services	185.4	193.3	196.2	196.5	197.0	197.3	198.1	199.0	199.2	199.5	199.9	200.1	200.6	201.9	203.9
Special indexes:															
All items less food	149.0	153.1	154.0	154.4	154.4	154.2	155.0	155.7	156.5	157.0	157.4	157.5	157.7	157.9	158.4
All items less shelter	144.8	148.6	149.4	149.8	149.7	149.6	150.3	150.8	151.6	152.4	152.8	152.8	152.8	152.9	153.8
All items less homeowners' costs (12/82 = 100)	149.5	153.5	154.3	154.7	154.5	154.3	155.3	155.9	156.9	157.5	157.8	157.9	158.1	158.3	158.9
All items less medical care	144.7	148.6	149.4	149.8	149.7	149.6	150.4	150.9	151.7	152.3	152.6	152.7	153.0	153.2	153.8
Commodities less food	127.9	129.8	130.1	130.5	130.4	129.9	130.6	131.0	132.4	133.5	134.0	133.0	132.0	131.7	132.5
Nondurables less food	129.7	130.9	131.4	131.9	131.4	130.4	131.3	131.8	134.0	136.0	136.8	135.1	133.8	133.2	134.5
Nondurables less food and apparel	131.6	134.1	134.5	134.3	134.0	134.0	135.6	135.9	137.3	140.1	142.0	140.9	140.2	139.5	139.8
Nondurables	136.8	139.3	139.9	140.4	140.1	139.7	140.7	141.0	142.5	143.9	144.2	143.6	143.1	143.1	144.1
Services less rent of shelter (12/82 = 100)	170.7	176.8	178.3	178.6	178.6	178.5	179.2	180.2	180.4	180.6	181.4	182.4	183.1	183.7	184.6
Services less medical care	158.4	163.5	164.7	165.1	165.0	165.0	165.9	166.8	167.2	167.3	167.7	168.5	169.4	169.9	170.2
Energy	104.6	105.2	106.2	104.5	102.8	103.3	105.0	104.9	106.1	110.0	112.9	113.1	112.5	111.6	111.7
All items less energy	154.1	158.7	159.5	160.2	160.3	160.2	161.0	161.6	162.3	162.5	162.5	162.7	163.1	163.4	164.0
All items less food and energy	156.5	161.2	162.1	132.8	163.0	162.7	163.4	164.2	164.9	165.0	165.1	165.2	165.5	165.8	166.4
Commodities less food and energy	137.1	139.3	139.7	140.5	140.7	140.0	140.3	140.8	141.9	142.0	141.7	141.0	140.3	140.3	141.4
Energy commodities	97.6	98.8	98.5	97.2	95.6	95.9	98.7	98.3	101.4	108.1	112.3	109.5	107.2	105.0	105.2
Services less energy	167.6	173.7	174.9	175.6	175.7	175.7	176.6	177.6	178.1	178.2	178.4	179.0	179.9	180.4	180.7
Purchasing power of the consumer dollar:															
1982–84 = $1.00	.675	.656	.653	.651	.651	.651	.648	.645	.642	.640	.639	.638	.637	.636	.634
1967 = $1.00	.225	.219	.218	.217	.217	.217	.216	.215	.214	.214	.213	.213	.213	.212	.212
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS															
All items	145.6	149.8	150.6	151.0	150.9	150.9	151.7	152.2	152.9	153.6	154.0	154.1	154.3	154.5	155.1
All items (1967 = 100)	433.8	446.1	448.5	449.6	449.5	449.5	451.9	453.2	455.6	457.6	458.7	459.1	459.7	460.2	461.9
Food and beverages	144.4	148.3	148.9	149.3	149.3	149.8	150.8	150.7	151.5	152.2	151.9	152.6	153.1	153.7	154.5
Food	143.9	147.9	148.5	148.9	148.9	149.4	150.5	150.3	151.1	151.7	151.5	152.1	152.8	153.4	154.1
Food at home	143.4	147.9	148.4	148.9	148.7	149.5	151.0	150.5	151.6	152.4	151.7	152.6	153.3	154.1	155.1
Cereals and bakery products	162.7	167.2	168.2	168.8	168.8	169.2	171.2	171.7	171.6	173.0	173.3	174.0	174.5	174.8	174.3
Meats, poultry, fish, and eggs	137.0	138.5	139.2	140.5	141.3	141.7	142.5	142.1	142.3	141.5	140.8	142.7	143.6	145.3	146.8
Dairy products	131.5	132.5	132.1	132.8	133.5	134.7	136.1	136.9	136.6	136.8	137.4	139.7	141.9	144.3	146.4
Fruits and vegetables	164.2	176.7	177.5	176.4	174.4	177.0	180.0	176.5	182.7	187.7	183.5	182.6	183.4	181.8	183.2
Other foods at home	135.3	140.3	140.7	140.8	140.1	140.1	141.4	141.5	142.1	142.4	142.5	142.5	142.6	142.8	143.2
Sugar and sweets	135.2	137.5	138.3	139.0	138.4	138.4	141.3	141.6	142.3	142.2	143.5	143.7	144.6	144.5	145.3
Fats and oils	133.5	137.1	137.4	138.0	137.7	137.3	139.6	139.6	139.9	139.7	139.7	140.6	140.2	140.6	141.2
Nonalcoholic beverages	122.9	131.0	131.1	130.2	129.8	128.8	129.5	129.4	129.2	129.4	128.8	127.9	127.1	128.0	127.4
Other prepared foods	147.2	150.8	151.2	151.8	150.8	151.9	152.9	153.2	154.4	155.1	155.4	155.9	156.6	156.3	157.2
Food away from home	145.5	148.8	149.5	149.9	150.1	150.3	150.6	150.9	151.1	151.6	152.0	152.3	152.7	153.1	153.4
Alcoholic beverages	151.0	153.3	153.8	154.2	154.6	154.3	155.0	156.1	156.8	157.3	157.6	157.9	157.8	158.2	158.9
Housing	142.0	145.4	146.5	146.6	146.4	146.7	147.5	148.0	148.5	148.6	148.9	149.6	150.4	150.7	150.8
Shelter	156.2	161.2	162.3	162.8	162.8	163.1	163.9	164.6	165.1	165.2	165.3	165.9	166.9	167.3	167.2
Renters' costs (12/84 = 100)	148.5	152.5	153.3	153.5	152.7	152.5	154.4	156.0	157.0	156.6	156.4	157.2	159.1	159.4	158.1
Rent, residential	153.7	157.4	158.2	158.6	158.9	159.3	159.7	160.1	160.3	160.6	160.9	161.3	161.9	162.2	162.6
Other renters' costs	196.6	204.4	205.6	205.3	197.5	194.1	205.5	214.0	219.6	215.6	212.0	215.3	226.0	226.5	215.0
Homeowners' costs (12/84 = 100)	150.9	156.0	157.2	157.8	158.3	158.7	159.0	159.3	159.6	159.8	160.1	160.5	161.0	161.4	161.9
Owners' equivalent rent (12/84 = 100)	151.1	156.2	157.5	158.1	158.6	159.0	159.3	159.5	159.8	160.1	160.4	160.8	161.3	161.7	162.2
Household insurance (12/84 = 100)	139.7	144.6	143.7	144.3	144.9	145.6	145.0	145.6	145.9	146.0	146.1	146.9	147.8	148.0	148.0
Maintenance and repairs	130.8	134.5	135.0	135.7	135.6	135.8	135.5	135.7	136.3	136.8	137.5	137.5	137.9	138.0	138.0
Maintenance and repair services	138.1	142.7	143.0	144.4	144.5	144.7	144.6	145.0	145.8	145.9	146.8	146.7	148.2	149.0	149.4
Maintenance and repair commodities	121.1	123.6	124.3	124.3	123.9	124.2	123.6	123.8	124.1	125.0	125.5	125.6	124.8	124.1	123.6
Fuel and other utilities	122.5	123.2	124.5	123.5	122.7	123.3	124.2	124.6	125.0	125.2	126.3	128.2	128.7	129.2	129.5
Fuels	111.1	110.8	112.7	110.8	109.5	110.2	111.4	111.8	111.5	112.3	113.4	116.1	117.0	117.5	117.9
Fuel oil, coal, and bottled gas	88.7	88.0	86.5	86.8	87.6	89.5	97.4	97.6	99.1	101.6	99.1	94.3	92.1	92.1	95.4
Gas (piped) and electricity	118.7	118.4	120.8	118.5	116.9	117.5	118.0	118.4	117.9	118.5	120.0	123.8	125.1	125.7	125.7
Other utilities and public services	150.8	153.2	153.6	153.9	154.0	154.3	154.8	155.4	157.0	156.1	157.5	158.2	158.0	158.5	158.8
Household furnishings and operations	119.7	121.8	122.5	122.7	122.3	122.4	122.8	122.9	123.2	123.4	123.0	123.1	123.2	123.3	123.6
Housefurnishings	109.6	109.9	110.5	110.4	109.7	109.7	110.0	110.0	110.2	110.5	109.8	109.9	109.8	110.0	110.1
Housekeeping supplies	132.5	137.3	138.6	139.4	139.9	139.9	140.6	140.7	141.3	141.7	141.3	141.2	141.6	141.8	141.8
Housekeeping services	140.6	146.8	147.8	148.0	148.2	148.6	149.0	149.4	149.6	149.7	150.1	150.5	151.1	151.2	152.2

27. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1995				1996								
	1994	1995	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.
Apparel and upkeep	132.2	130.9	131.6	133.4	132.5	129.5	129.1	130.2	133.9	134.2	133.2	130.2	127.9	127.5	130.6
Apparel commodities	129.4	127.7	128.5	130.5	129.5	126.2	125.8	127.0	130.9	131.2	130.1	126.9	124.3	123.8	127.2
Men's and boys' apparel	125.8	125.9	126.4	127.9	127.9	125.8	124.8	126.3	128.9	128.6	129.2	126.7	124.7	125.7	127.0
Women's and girls' apparel	129.2	125.4	125.4	129.2	127.7	123.3	122.3	123.3	128.6	129.5	127.1	122.1	118.1	117.4	122.2
Infants' and toddlers' apparel	129.3	128.1	132.6	132.8	130.9	129.8	132.3	135.3	134.7	134.8	131.5	130.1	126.8	126.7	132.4
Footwear	126.9	126.2	127.5	128.4	127.6	125.0	123.9	126.3	128.8	129.0	129 3	128.1	126.8	126.1	127.8
Other apparel commodities	148.7	150.6	153.2	150.8	149.1	145.3	149.1	146.9	153.7	153.0	151.5	150.5	150.9	147.8	151.4
Apparel services	154.9	156.8	156.8	156.3	156.6	157.1	157.6	157.9	158.2	158.2	158.8	159.0	159.3	159.6	159.7
Transportation	133.4	138.8	138.5	139.0	139.0	138.9	139.7	140.0	140.9	143.0	144.4	143.8	143.3	142.6	142.9
Private transportation	131.4	136.9	136.6	136.9	136.9	137.2	138.0	138.0	138.8	141.0	142.5	141.8	141.1	140.5	140.7
New vehicles	138.3	141.8	140.9	141.9	143.0	143.7	144.2	144.5	144.5	144.5	144.5	144.5	144.3	144.0	144.3
New cars	135.7	138.7	137.4	138.3	139.6	140.4	140.8	141.0	141.0	140.9	140.8	140.9	140.6	140.3	140.6
Used cars	142.4	157.3	157.4	158.1	158.8	159.1	158.9	158.6	158.3	158.5	158.7	158.3	158.1	157.8	158.2
Motor fuel	98.4	99.9	99.8	98.2	96.3	96.4	98.6	98.1	101.4	108.6	113.5	111.0	108.8	106.3	106.2
Gasoline	98.2	99.7	99.7	97.9	95.9	95.9	98.2	97.8	101.2	108.3	113.3	110.9	108.7	106.0	105.8
Maintenance and repair	150.9	154.8	155.9	156.2	156.5	156.6	157.1	157.6	157.9	158.2	158.4	158.6	158.9	159.6	160.8
Other private transportation	157.9	166.5	166.0	167.7	168.5	168.4	168.5	168.8	168.1	168.6	168.7	168.8	169.2	169.7	169.8
Other private transportation commodities	102.8	104.0	104.1	104.2	104.3	104.4	104.6	104.6	104.4	104.2	104.0	104.3	103.8	104.0	104.1
Other private transportation services	171.5	182.2	181.5	183.7	184.6	184.5	184.6	185.0	184.1	184.8	185.1	185.1	185.7	186.3	186.4
Public transportation	167.7	171.9	172.2	174.8	174.1	169.0	169.6	174.6	177.2	177.5	178.6	180.1	180.6	179.4	181.8
Medical care	210.4	219.8	221.5	222.3	222.8	223.1	224.5	225.6	226.0	226.4	226.8	227.3	228.2	228.5	228.8
Medical care commodities	198.6	202.2	202.5	203.2	203.9	204.2	205.4	206.1	206.5	207.0	207.1	208.0	208.5	208.5	208.5
Medical care services	213.0	223.8	225.8	226.6	227.1	227.4	228.9	230.1	230.4	230.7	231.3	231.6	232.6	233.1	233.3
Professional services	193.4	202.0	203.5	204.0	204.5	204.9	206.0	207.2	207.6	208.1	208.8	209.0	209.9	210.4	210.8
Hospital and related services	242.7	255.2	257.5	258.8	259.6	260.0	262.3	263.7	264.0	264.4	264.9	265.8	267.3	268.0	268.4
Entertainment	148.2	151.8	152.7	152.9	153.6	153.8	154.7	156.0	156.1	156.3	156.5	156.7	156.7	157.0	157.4
Entertainment commodities	135.5	137.9	138.4	138.7	139.4	139.4	140.3	141.4	141.7	141.8	141.9	141.9	141.8	142.2	142.2
Entertainment services	166.7	171.9	173.4	173.5	174.1	174.6	175.5	176.9	176.9	177.1	177.7	178.0	178.2	178.3	179.3
Other goods and services	196.4	204.2	207.2	207.8	208.3	208	209.0	209.6	209.9	210.1	211.2	211.0	211.6	213.0	214.7
Tobacco products	220.1	225.9	228.1	228.2	229.1	228.4	229.3	229.8	230.7	230.3	233.1	232.8	233.2	233.0	233.7
Personal care	144.8	147.3	147.6	148.7	149.0	148.9	149.1	149.2	149.3	149.6	150.3	149.6	150.0	150.4	150.8
Toilet goods and personal care appliances	142.2	143.8	143.7	145.1	145.4	144.7	144.4	144.6	144.6	144.7	146.0	144.6	145.0	145.6	145.7
Personal care services	147.9	151.5	152.5	153.2	153.5	154.2	154.9	155.1	155.2	155.7	155.8	156.0	156.2	156.5	157.2
Personal and educational expenses	219.2	231.2	236.1	236.8	237.1	237.3	238.5	239.3	239.5	240.1	240.3	240.6	241.4	244.2	247.3
School books and supplies	207.1	215.5	218.1	219.1	219.9	220.3	225.2	225.8	226.3	226.5	225.6	225.5	225.5	228.8	231.5
Personal and educational services	220.4	232.6	237.8	238.4	238.7	238.9	239.8	240.7	240.9	241.5	241.7	242.0	242.9	245.7	248.8
All items	145.6	149.8	150.6	151.0	150.9	150.9	151.7	152.2	152.9	153.6	154.0	154.1	154.3	154.5	155.1
Commodities	133.4	136.4	136.7	137.1	137.0	136.9	137.7	137.9	139.1	140.2	140.5	140.0	139.7	139.6	140.4
Food and beverages	144.4	148.3	148.9	149.3	149.3	149.8	150.8	150.7	151.5	152.2	151.9	152.6	153.1	153.7	154.5
Commodities less food and beverages	126.6	129.0	129.3	129.7	129.5	129.0	129.7	130.0	131.4	132.8	133.5	132.4	131.4	130.9	131.7
Nondurables less food and beverages	127.9	129.0	129.6	130.0	129.2	128.3	129.3	129.7	132.2	134.5	135.7	133.8	132.4	131.6	132.8
Apparel commodities	129.4	127.7	128.5	130.5	129.5	126.2	125.8	127.0	130.9	131.2	130.1	126.9	124.3	123.8	127.2
Nondurables less food, beverages, and apparel	130.1	132.6	133.1	132.7	132.1	132.1	133.9	134.0	135.7	139.1	141.5	140.1	139.2	138.2	138.4
Durables	123.8	127.9	127.7	128.2	128.6	128.9	129.1	129.3	129.3	129.4	129.2	129.2	129.0	128.9	129.2
Services	160.6	166.0	167.3	167.7	167.7	167.9	168.6	169.4	169.8	170.0	170.4	171.2	172.0	172.5	172.8
Rent of shelter (12/84 = 100)	150.3	155.0	156.1	156.6	156.7	156.9	157.7	158.4	158.9	159.0	159.1	159.6	160.6	161.0	160.9
Household services less rent of shelter (12/84 = 100)	125.4	127.0	128.3	127.4	126.8	127.2	127.6	128.0	128.4	128.4	129.6	131.6	132.3	132.7	133.0
Transporatation services	165.7	173.6	173.5	175.3	175.8	174.9	175.2	176.3	176.4	176.9	177.3	177.6	176.1	178.4	179.2
Medical care services	213.0	223.8	225.8	226.6	227.1	227.4	228.9	230.1	230.4	230.7	231.3	231.6	232.6	233.1	233.3
Other services	182.4	190.1	193.0	193.3	193.7	194.0	194.9	195.8	195.9	196.3	196.6	196.9	197.4	198.7	200.5
Special indexes:															
All items less food	145.9	150.0	150.9	151.3	151.2	151.1	151.8	152.4	153.2	153.9	154.4	154.4	154.5	154.6	155.2
All items less shelter	143.0	146.8	147.5	147.9	147.8	147.8	148.5	148.9	149.8	150.6	151.1	151.1	151.0	151.2	151.9
All items less homeowners' costs (12/84 = 100)	137.0	140.7	141.4	141.8	141.6	141.5	142.4	142.8	143.7	144.4	144.8	144.8	145.0	145.1	145.7
All items less medical care	142.6	146.4	147.2	147.6	147.5	147.5	148.3	148.7	149.5	150.2	150.5	150.6	150.8	151.0	151.6
Commodities less food	127.6	130.0	130.2	130.6	130.4	130.0	130.7	131.0	132.4	133.8	134.4	133.3	132.4	132.0	132.8
Nondurables less food	129.2	130.4	131.0	131.4	130.7	129.8	130.8	131.3	133.6	135.8	136.9	135.1	133.8	133.1	134.3
Nondurables less food and apparel	131.2	133.7	134.2	133.9	133.4	133.4	135.1	135.3	136.9	139.9	142.0	140.8	140.0	139.2	139.5
Nondurables	136.4	139.0	139.5	139.9	139.6	139.3	140.4	140.5	142.1	143.6	144.1	143.5	143.1	143.0	143.9
Services less rent of shelter (12/84 = 100)	152.1	157.6	158.8	159.1	159.1	159.2	159.8	160.5	160.7	161.0	161.7	162.6	163.3	163.8	164.5
Services less medical care	156.1	161.1	162.3	162.6	162.6	162.8	163.5	164.2	164.6	134.8	165.2	166.0	166.8	167.3	167.6
Energy	104.1	104.7	105.5	103.8	102.2	102.6	104.3	104.2	105.8	109.8	112.8	112.9	112.2	111.1	111.3
All items less energy	151.5	156.1	156.8	157.5	157.7	157.6	158.3	158.8	159.5	159.8	159.8	160.0	160.3	160.6	161.2
All items less food and energy	153.5	158.2	159.0	159.7	159.9	159.7	160.3	161.0	161.7	161.9	162.0	162.0	162.2	162.5	163.1
Commodities less food and energy	136.2	138.9	139.3	140.1	140.2	139.6	139.9	140.4	141.4	141.6	141.4	140.7	140.1	140.0	141.0
Energy commodities	97.8	99.1	98.9	97.5	95.8	96.0	98.8	98.4	101.5	108.3	112.5	109.8	107.6	105.3	105.5
Services less energy	165.3	171.3	172.5	173.1	173.3	173.4	174.2	175.0	175.5	175.6	176.0	176.4	177.2	177.7	178.0
Purchasing power of the consumer dollar:															
1982–84 = $1.00	.687	.668	.664	.662	.663	.663	.659	.657	.654	.651	.649	.649	.648	.647	.645
1967 = $1.00	.231	.224	.223	.222	.222	.222	.221	.221	.219	.219	.218	.218	.218	.217	.216

28. Consumer Price Index: U.S. city average and available local area data: all items

[1982–84 = 100, unless otherwise indicated]

Area[1]	Pricing schedule[2]	All Urban Consumers							Urban Wage Earners						
		1995		1996					1995		1996				
		Aug.	Sept.	May	June	July	Aug.	Sept.	Aug.	Sept.	May	June	July	Aug.	Sept.
U.S. city average	M	152.9	153.2	156.6	156.7	157.0	157.3	157.8	150.2	150.6	154.0	154.1	154.3	154.5	155.1
Region and area size[3]															
Northeast urban	M	159.7	160.0	163.0	163.1	163.4	164.0	164.6	157.1	157.6	160.6	160.6	160.9	161.4	162.0
Size A—More than 1,200,000	M	160.3	160.7	163.6	163.8	164.1	164.7	165.4	156.7	157.2	160.2	160.4	160.5	161.0	161.8
Size B—500,000 to 1,200,000	M	157.9	158.0	161.0	160.9	161.8	162.2	162.2	155.7	155.9	158.9	158.7	159.7	160.0	159.8
Size C—50,000 to 500,000	M	158.5	158.5	160.9	161.0	161.5	161.8	162.2	159.8	160.1	162.7	162.5	162.9	163.2	163.7
North Central urban	M	148.9	149.4	152.7	152.9	153.2	153.4	154.0	145.6	146.1	149.4	149.5	149.8	149.9	150.6
Size A—More than 1,200,000	M	149.8	150.3	153.2	153.5	153.7	154.0	154.5	145.8	146.3	149.3	149.6	149.7	149.9	150.4
Size B—360,000 to 1,200,000	M	147.8	147.9	151.6	152.0	152.4	152.8	153.3	144.0	144.2	147.8	148.0	148.3	148.7	149.5
Size C—50,000 to 360,000	M	149.9	150.6	154.7	154.1	154.6	154.7	155.4	147.3	147.9	152.1	151.5	151.9	151.9	152.6
Size D—Nonmetropolitan (less than 50,000)	M	145.7	146.3	149.2	149.8	150.4	150.4	151.0	144.0	144.5	147.3	148.0	148.5	148.5	149.1
South urban	M	149.7	149.8	153.5	154.0	154.0	154.1	154.5	148.3	148.4	152.1	152.6	152.6	152.7	153.1
Size A—More than 1,200,000	M	149.4	149.2	152.7	153.2	153.2	153.1	153.5	147.6	147.3	151.0	151.6	151.6	151.4	151.7
Size B—450,000 to 1,200,000	M	152.0	152.3	155.9	156.3	156.7	156.9	157.3	148.3	148.7	152.3	152.6	152.9	153.1	153.6
Size C—50,000 to 450,000	M	149.4	149.5	153.2	153.8	153.7	154.0	154.4	149.4	149.5	153.1	153.7	153.6	153.9	154.4
Size D—Nonmetropolitan (less than 50,000)	M	147.8	148.4	152.9	153.0	152.5	152.6	153.2	148.3	148.9	153.5	153.6	152.8	153.1	153.9
West urban	M	153.7	154.1	157.6	157.5	157.9	158.0	158.6	150.7	151.0	154.7	154.5	154.9	154.9	155.5
Size A—More than 1,250,000	M	154.1	154.5	157.6	157.3	158.0	158.1	158.7	149.6	149.9	153.2	152.9	153.4	153.4	154.0
Size C—50,000 to 330,000	M	157.0	157.6	162.4	162.4	162.4	162.6	163.0	153.9	154.5	159.4	159.2	159.3	159.5	159.9
Size classes:															
A (12/86 = 100)	M	138.2	138.5	141.3	141.4	141.7	141.9	142.4	137.2	137.5	140.4	140.6	140.8	140.9	141.4
B	M	152.8	153.1	156.6	156.9	157.4	157.6	157.9	150.0	150.3	153.8	154.0	154.4	154.6	155.0
C	M	152.4	152.7	156.4	156.5	156.8	157.0	157.4	151.5	151.9	155.7	155.7	155.8	156.0	156.6
D	M	148.8	149.6	153.5	153.7	153.7	154.0	154.7	148.2	148.9	152.8	153.1	153.0	153.3	154.0
Selected local areas															
Chicago, IL–Northwestern IN	M	153.8	154.0	156.9	157.6	157.7	158.1	158.3	148.8	149.0	151.9	152.6	152.7	152.9	153.2
Los Angeles–Long Beach, Anaheim, CA	M	154.4	154.6	157.5	156.7	157.6	157.3	158.2	149.2	149.3	152.3	151.5	152.3	151.9	152.7
New York, NY–Northeastern NJ	M	162.8	163.2	166.4	166.5	166.7	167.2	168.2	158.9	159.5	162.8	162.8	162.8	163.3	164.4
Philadelphia, PA–NJ	M	159.6	160.3	161.8	162.3	162.8	163.6	164.5	159.2	159.8	161.3	161.7	162.1	163.0	163.7
San Francisco–Oakland, CA	M	151.5	152.3	155.1	155.2	155.9	155.6	156.3	149.3	150.0	153.0	152.9	153.4	153.0	153.8
Baltimore, MD	1	–	151.8	153.9	–	155.7	–	155.4	–	150.8	152.8	–	154.6	–	153.6
Boston, MA	1	–	158.6	161.8	–	162.0	–	163.5	–	157.4	160.8	–	160.9	–	162.1
Cleveland, OH	1	–	149.0	151.8	–	152.1	–	153.5	–	141.3	144.0	–	144.3	–	145.8
Miami, FL	1	–	148.9	152.6	–	152.4	–	154.6	–	146.9	151.0	–	150.8	–	152.6
St. Louis, MO–IL	1	–	147.1	148.1	–	149.9	–	151.0	–	150.1	147.4	–	149.0	–	150.1
Washington, DC–MD–VA	1	–	156.2	159.0	–	160.1	–	160.8	–	153.5	156.7	–	157.6	–	158.2
Dallas–Ft Worth, TX	2	145.1	–	–	149.4	–	149.5	–	144.8	–	–	149.6	–	149.5	–
Detroit, MI	2	148.8	–	–	151.9	–	152.7	–	144.0	–	–	147.1	–	148.0	–
Houston, TX	2	140.1	–	–	142.8	–	142.8	–	139.8	–	–	142.2	–	142.2	–
Pittsburgh, PA	2	150.1	–	–	153.2	–	153.6	–	143.7	–	–	146.9	–	147.2	–

[1] Area definitions are those established by the Office of Management and Budget in 1983, except for Boston–Lawrence–Salem, MA–NH, Area (excludes Monroe County); and Milwaukee, WI, Area (includes only the Milwaukee MSA). Definitions do not include revisions made since 1983. Excludes farms and the military.

[2] Foods, fuels, and several other items priced every month in all areas; most other goods and services priced as indicated:

M—Every month.

1—January, March, May, July, September, and November.

2—February, Apriul, June, August, October, and December.

[3] Regions are defined as the four Census regions.

– Data not available.

NOTE: Local area CPI indexes are byproducts of the national CPI program. Because each local index is a small subset of the national index, it has a smaller sample size and is, therefore, subject to substantially more sampling and other measurement error than the national index. As a result, local area indexes show greater volatility than the national index, although their long-term trends are quite similar. Therefore, the Bureau of Labor Statistics strongly urges users to consider adopting the national average CPI for use in escalator clauses.

29. Annual data: Consumer Price Index, U.S. city average, all items and major groups

[1982–84 = 100]

Series	1987	1988	1989	1990	1991	1992	1993	1994	1995
Consumer Price Index for All Urban Consumers:									
All items:									
Index	113.6	118.3	124.0	130.7	136.2	140.3	144.5	148.2	152.4
Percent change	3.6	4.1	4.8	5.4	4.2	3.0	3.0	2.6	2.8
Food and beverages:									
Index	113.5	118.2	124.9	132.1	136.8	138.7	141.6	144.9	148.9
Percent change	4.0	4.1	5.7	5.8	3.6	1.4	2.1	2.3	2.8
Housing:									
Index	114.2	118.5	123.0	128.5	133.6	137.5	141.2	144.8	148.5
Percent change	3.0	3.8	3.8	4.5	4.0	2.9	2.7	2.5	2.6
Apparel and upkeep:									
Index	110.6	115.4	118.6	124.1	128.7	131.9	133.7	133.4	132.0
Percent change	4.4	4.3	2.8	4.6	3.7	2.5	1.4	–.2	–1.0
Transportation:									
Index	105.4	108.7	114.1	120.5	123.8	126.5	130.4	134.3	139.1
Percent change	3.0	3.1	5.0	5.6	2.7	2.2	3.1	3.0	3.6
Medical care:									
Index	130.1	138.6	149.3	162.8	177.0	190.1	201.4	211.0	220.5
Percent change	6.6	6.5	7.7	9.0	8.7	7.4	5.9	4.8	4.5
Entertainment:									
Index	115.3	120.3	126.5	132.4	138.4	142.3	145.8	150.1	153.9
Percent change	3.3	4.3	5.2	4.7	4.5	2.8	2.5	2.9	2.5
Other goods and services:									
Index	128.5	137.0	147.7	159.0	171.6	183.3	192.9	198.5	206.9
Percent change	5.8	6.6	7.8	7.7	7.9	6.8	5.2	2.9	4.2
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	112.5	117.0	122.6	129.0	134.3	138.2	142.1	145.6	149.8
Percent change	3.6	4.0	4.8	5.2	4.1	2.9	2.8	2.5	2.9

30. Producer Price Indexes, by stage of processing

[1982 = 100]

Grouping	Annual average		1995		1996									
	1994	1995	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Finished goods	125.5	127.9	128.7	129.1	129.4	129.4	130.1	130.6	131.1	131.7	131.5	131.9	131.6	132.5
Finished consumer goods	123.3	125.8	126.2	126.7	127.1	127.0	128.0	128.7	129.3	130.0	129.9	130.4	130.2	131.0
Finished consumer foods	126.8	129.0	131.1	131.0	130.7	130.7	132.0	131.2	131.5	133.6	133.9	135.4	135.6	136.4
Finshed consumer goods excluding foods	121.6	124.0	123.9	124.6	125.4	125.3	126.1	127.4	128.2	128.3	128.0	128.1	127.8	128.6
Nondurable goods less food	116.2	118.8	117.8	118.9	120.1	119.9	121.2	123.1	124.1	124.2	124.0	124.2	124.2	124.2
Durable goods	130.9	132.7	134.7	134.7	134.2	134.3	134.3	134.0	134.2	134.4	133.8	133.6	132.4	135.1
Capital equipment	134.1	136.7	138.3	138.1	138.3	138.4	138.3	138.3	138.2	138.2	138.1	138.0	137.2	138.6
Intermediate materials, supplies, and components	118.5	124.9	125.1	125.1	125.2	124.7	124.9	125.4	126.2	126.2	125.9	126.0	126.5	126.0
Materials and components for manufacturing	122.1	130.4	130.5	130.0	129.5	129.0	128.6	128.3	128.8	128.8	131.3	131.3	128.6	128.3
Materials for food manufacturing	118.5	119.5	122.8	122.9	120.7	121.0	120.6	121.6	126.6	128.2	128.5	129.0	129.6	129.1
Materials for nondurable manufacturing	119.2	135.1	134.9	134.2	133.3	132.4	131.5	130.5	130.2	129.9	129.4	129.7	129.9	129.7
Materials for durable manufacturing	125.2	135.8	133.9	133.2	132.2	131.0	131.1	131.2	132.5	132.6	130.7	130.4	131.2	130.6
Components for manufacturing	124.3	126.5	127.1	127.1	127.3	127.4	127.2	126.9	126.8	126.6	126.7	126.7	126.6	126.6
Materials and components for construction	136.6	142.1	142.3	142.1	141.9	142.0	142.2	142.5	143.5	144.0	143.7	144.1	144.7	144.2
Processed fuels and lubricants	83.1	84.2	82.3	83.2	85.2	84.0	85.8	89.3	91.4	91.3	91.1	91.6	93.0	92.2
Containers	129.7	148.8	151.1	150.4	148.2	146.1	144.6	143.0	141.6	140.1	139.6	138.7	138.4	137.9
Supplies	127.0	132.1	134.3	134.7	135.3	135.3	135.4	135.7	136.2	136.1	136.4	136.3	136.7	135.9
Crude materials for further processing	101.8	102.7	103.8	106.0	108.8	111.1	110.0	114.4	115.9	113.3	115.6	114.5	113.0	111.3
Foodstuffs and feedstuffs	106.5	105.8	114.2	114.7	114.7	115.0	116.2	119.6	127.7	129.0	130.9	129.4	124.7	119.4
Crude nonfood materials	94.8	96.8	93.2	96.4	100.8	104.4	102.0	106.7	103.8	98.7	101.2	100.6	101.1	101.9
Special groupings:														
Finished goods, excluding foods	125.1	127.5	127.9	128.4	129.0	128.9	129.5	130.4	130.9	131.0	130.8	130.8	130.3	131.3
Finished energy goods	77.0	78.1	75.2	76.7	78.5	77.8	80.1	83.3	84.6	84.7	84.2	84.5	84.6	84.5
Finished goods less energy	134.2	136.9	138.7	138.7	138.6	138.8	139.1	138.8	139.0	139.7	139.6	140.0	139.6	140.8
Finished consumer goods less energy	134.2	136.9	138.8	138.8	138.7	138.9	139.3	138.9	139.3	140.2	140.2	140.7	140.5	141.6
Finished goods less food and energy	137.1	140.0	141.6	141.7	141.8	141.9	141.8	141.7	142.0	142.0	141.9	141.8	141.1	142.5
Finished consumer goods less food and energy	139.0	141.9	143.7	143.9	143.9	144.1	144.0	143.8	144.3	144.4	144.3	144.1	143.5	144.9
Consumer nondurable goods less food and energy	144.4	148.5	149.9	150.3	150.6	151.0	150.8	150.8	151.5	151.6	151.8	151.6	151.6	151.8
Intermediate materials less foods and feeds	118.7	125.5	125.3	125.2	125.4	124.8	125.0	125.4	126.0	125.9	125.6	125.7	126.1	125.8
Intermediate foods and feeds	114.8	114.8	121.2	123.0	123.0	123.0	123.4	125.3	130.3	131.2	131.9	132.3	133.8	130.7
Intermediate energy goods	83.0	84.1	82.2	83.1	85.0	83.8	85.7	89.1	91.2	91.1	90.9	91.4	92.8	91.9
Intermediate goods less energy	126.3	134.0	134.6	134.4	134.1	133.7	133.5	133.3	133.8	133.8	133.5	133.5	133.9	133.5
Intermediate materials less foods and energy	127.1	135.2	135.4	135.1	134.8	134.4	134.1	133.9	134.1	134.0	133.6	133.6	133.9	133.6
Crude energy materials	72.1	69.4	68.3	72.5	78.1	82.7	80.6	87.3	83.3	77.6	81.8	81.0	81.5	82.7
Crude materials less energy	119.3	123.5	126.5	126.6	126.8	127.1	127.1	129.1	135.0	135.2	135.8	134.7	131.5	127.5
Crude nonfood materials less energy	156.2	173.6	162.2	161.4	162.1	162.3	159.2	157.6	158.1	155.3	152.4	152.5	153.1	152.6

31. Producer Price Indexes for the net output of major industry groups

[December 1984 = 100, unless otherwise indicated]

SIC	Industry	Annual average		1995		1996									
		1994	1995	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
–	**Total mining industries**	73.3	71.0	70.5	74.1	79.1	83.4	80.9	86.0	82.9	78.1	81.0	80.4	80.6	82.8
10	Metal mining	81.4	101.4	100.0	100.0	98.2	97.5	96.7	96.4	97.1	93.3	89.2	87.7	87.0	87.0
12	Coal mining (12/85 = 100)	93.2	91.6	91.4	91.3	89.9	91.9	92.2	91.1	93.1	91.7	90.5	90.8	93.0	91.4
13	Oil and gas extraction (12/85 = 100)	71.1	66.6	66.0	71.0	78.0	82.6	79.2	86.2	81.8	75.9	80.7	80.1	80.1	83.2
14	Mining and quarrying of nonmetallic minerals, except fuels	120.5	123.8	124.4	124.4	125.9	126.4	126.7	127.1	127.6	128.1	127.2	126.3	126.1	126.9
–	**Total manufacturing industries**	120.7	124.2	125.1	125.3	125.8	125.7	126.0	126.8	127.4	127.1	127.1	127.4	127.5	128.2
20	Food and kindred products	120.1	121.7	123.8	124.2	124.5	124.4	124.3	124.6	126.3	127.6	128.3	129.7	129.9	129.8
21	Tobacco manufactures	187.8	193.2	195.0	195.0	195.1	195.0	195.1	195.1	201.1	201.0	201.1	201.4	201.0	201.1
22	Textile mill products	113.6	116.5	117.2	117.3	117.4	117.5	117.7	118.1	118.3	118.0	118.3	118.7	118.7	118.6
23	Apparel and other finished products made from fabrics and similar materials	119.7	120.6	120.7	120.7	121.4	121.6	121.6	121.5	122.2	122.5	122.6	121.9	122.8	123.0
24	Lumber and wood products, except furniture	154.4	154.1	152.1	151.4	150.6	150.7	150.9	151.0	153.8	154.5	153.3	154.8	156.8	154.9
25	Furniture and fixtures	129.7	133.3	134.9	134.9	135.2	135.7	135.6	135.8	135.7	135.9	136.2	136.2	136.2	136.6
26	Paper and allied products	123.7	146.7	150.8	150.2	147.8	146.1	143.0	140.5	138.2	137.2	136.3	135.8	135.3	134.9
27	Printing, publishing, and allied industries	149.7	159.0	162.6	163.0	164.5	164.8	164.8	165.1	165.3	165.4	165.2	165.3	165.7	166.1
28	Chemicals and allied products	130.0	143.4	144.6	144.3	144.6	144.5	145.0	145.3	146.0	146.0	145.9	146.2	147.0	146.9
29	Petroleum refining and related products	74.8	77.2	73.4	75.4	79.4	77.3	81.8	90.5	92.8	87.3	86.3	87.4	89.7	92.0
30	Rubber and miscellaneous plastics products	117.1	123.3	123.6	123.2	123.0	122.9	122.8	122.6	123.0	123.0	123.2	123.3	123.6	123.4
31	Leather and leather products	130.6	134.1	134.4	134.5	134.6	134.6	134.8	134.1	134.5	134.4	134.1	134.2	134.7	134.0
32	Stone, clay, glass, and concrete products	119.6	124.3	124.9	124.9	125.1	125.3	125.3	125.4	125.5	125.5	125.8	126.2	126.5	126.3
33	Primary metal industries	117.0	128.2	127.1	126.8	125.7	124.4	124.2	124.1	124.6	124.6	123.2	122.9	122.9	122.8
34	Fabricated metal products, except machinery and transportation transportation equipment	120.3	124.8	125.8	125.9	125.9	125.7	125.9	126.0	126.0	126.2	126.2	126.2	126.3	126.4
35	Machinery, except electrical	117.5	119.0	119.3	119.4	119.7	119.7	119.7	119.3	119.3	119.1	119.1	119.0	119.0	118.9
36	Electrical and electronic machinery, equipment, and supplies	112.7	113.3	113.5	113.5	113.8	113.9	113.5	113.3	113.1	113.0	113.0	113.3	113.1	113.0
37	Transportation	130.1	132.2	134.4	134.4	134.2	134.2	134.3	134.1	134.1	134.3	133.8	133.6	132.1	135.3
38	Measuring and controlling instruments; photographic, medical, and optical goods; watches and clocks	122.1	124.0	125.2	124.4	125.1	125.3	125.2	125.1	125.1	124.9	125.2	125.2	125.3	124.9
39	Miscellaneous manufacturing industries (12/85 = 100)	123.3	125.9	126.5	126.5	127.3	127.6	127.4	127.4	127.6	127.7	127.9	127.9	128.0	128.4
	Service industries:														
42	Motor freight transportation and warehousing (06/93 = 100)	101.9	104.5	104.9	104.7	105.1	105.9	105.8	105.9	106.0	106.9	106.2	106.2	106.3	107.5
43	U.S. Postal Service (06/89 = 100)	119.8	132.2	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3
44	Water transportation (12/92 = 100)	100.0	103.0	103.7	104.0	103.9	103.8	104.2	103.8	103.0	102.9	103.0	102.9	103.2	104.0
45	Transportation by air (12/92 = 100)	108.5	113.7	118.0	115.9	117.2	119.1	119.9	120.2	120.8	121.4	122.5	121.9	122.0	122.5
46	Pipelines, except natural gas (12/92 = 100)	102.6	110.8	110.6	110.6	110.6	110.6	110.6	103.7	103.7	103.7	104.0	104.0	104.0	103.9

32. Annual data: Producer Price Indexes, by stage of processing

[1982 = 100]

Index	1987	1988	1989	1990	1991	1992	1993	1994	1995
Finished goods									
Total	105.4	108.0	113.6	119.2	121.7	123.2	124.7	125.5	127.9
Foods	109.5	112.6	118.7	124.4	124.1	123.3	125.7	126.8	129.0
Energy	61.8	59.8	65.7	75.0	78.1	77.8	78.0	77.0	78.1
Other	113.3	117.0	122.1	126.6	131.1	134.2	135.8	137.1	140.0
Intermediate materials, supplies, and components									
Total	101.5	107.1	112.0	114.5	114.4	114.7	116.2	118.5	124.9
Foods	105.3	113.2	118.1	118.7	118.1	117.9	118.9	122.1	130.4
Energy	73.0	70.9	76.1	85.5	85.1	84.3	84.6	83.0	84.1
Other	107.8	115.2	120.2	120.9	121.4	122.0	123.8	127.1	135.2
Crude materials for further processing									
Total	93.7	96.0	103.1	108.9	101.2	100.4	102.4	101.8	102.7
Foods	96.2	106.1	111.2	113.1	105.5	105.1	108.4	106.5	105.8
Energy	75.0	67.7	75.9	85.9	80.4	78.8	76.7	72.1	69.4
Other	115.7	133.0	137.9	136.3	128.2	128.4	140.2	156.2	173.6

33. U.S. export price indexes by Standard International Trade Classification

[1990 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1995		1996									
		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
0	**Food and live animals**	128.3	128.8	131.1	131.5	134.1	140.8	146.0	142.9	140.0	139.1	125.6	123.5
01	Meat and meat preparations	121.3	122.7	117.4	113.8	113.8	115.8	114.1	117.8	114.5	117.0	114.3	114.5
04	Cereals and cereal preparations	142.0	144.2	149.6	152.8	157.1	173.4	183.8	174.6	168.1	164.0	131.1	125.2
05	Vegetables, fruit, and nuts, prepared fresh or dry	124.6	121.6	123.2	121.7	125.7	126.9	126.5	128.9	128.5	128.8	130.2	133.0
2	**Crude materials, inedible, except fuels**	120.4	120.5	121.5	117.9	113.9	113.2	112.7	112.9	111.7	112.3	113.6	112.5
21	Hides, skins, and furskins, raw	92.7	91.2	90.5	91.0	91.2	90.1	92.2	95.8	95.9	105.2	109.5	117.6
22	Oilseeds and oleaginous fruits	112.5	113.8	122.0	120.5	119.7	128.0	129.2	127.2	130.6	132.6	131.9	114.1
23	Crude rubber (including synthetic and reclaimed)	112.9	112.2	110.6	110.2	110.3	107.6	107.7	108.4	107.0	108.9	108.3	107.6
24	Cork and wood	148.1	149.5	150.7	151.9	150.7	148.0	145.8	145.4	144.4	145.3	147.9	148.6
25	Pulp and waste paper	140.1	133.5	135.0	114.1	92.0	81.5	80.4	87.9	90.3	88.9	89.9	91.1
26	Textile fibers and their waste	120.7	123.5	121.2	118.7	115.9	117.0	117.3	114.3	107.7	106.3	108.6	107.2
27	Crude fertilizers and crude minerals	98.5	98.0	98.3	97.3	97.1	97.1	96.9	95.1	95.3	95.1	95.0	95.1
28	Metalliferous ores and metal scrap	107.8	109.8	109.2	108.7	108.3	109.0	108.5	106.9	101.5	101.1	102.5	106.4
3	**Mineral fuels, lubricants, and related products**	92.0	92.8	97.4	95.8	97.4	101.0	100.8	99.4	99.1	99.3	102.4	106.0
32	Coal, coke, and briquettes	98.7	98.6	99.9	99.3	99.5	99.7	99.9	100.1	99.5	98.6	98.3	98.6
33	Petroleum, petroleum products, and related materials	84.7	86.4	93.2	91.0	93.6	99.7	98.4	95.5	95.3	96.3	101.7	107.6
4	**Animal and vegetable oils, fats, and waxes**	117.8	117.4	114.1	108.2	106.2	108.3	115.6	113.5	111.6	114.6	121.0	115.8
5	**Chemicals and related products, n.e.s.**	110.2	109.9	110.1	110.3	110.5	110.7	110.9	110.6	110.8	109.9	109.6	109.5
54	Medicinal and pharmaceutical products	108.9	108.7	109.7	109.7	110.9	110.5	110.6	110.6	110.5	110.6	110.7	110.5
55	Essential oils; polishing and cleaning preparations	111.6	112.0	111.8	111.0	110.8	111.9	111.5	111.8	111.8	112.0	112.8	112.8
57	Plastics in primary forms (12/92 = 100)	121.4	119.8	121.1	121.1	122.3	125.8	127.8	127.8	128.8	129.1	128.7	127.0
58	Plastics in nonprimary forms (12/92 = 100)	109.6	109.0	110.0	109.8	109.2	107.8	107.6	108.5	109.1	107.8	106.2	105.8
59	Chemical materials and products, n.e.s.	115.7	115.7	115.8	116.8	115.9	117.0	117.1	117.2	118.4	118.3	118.2	118.4
6	**Manufactured goods classified chiefly by materials**	114.8	114.3	114.8	113.9	113.4	112.9	113.1	112.4	111.7	111.2	111.5	111.0
62	Rubber manufactures, n.e.s.	119.6	119.5	119.8	120.3	119.0	119.3	119.5	119.8	119.7	119.3	119.2	119.3
64	Paper, paperboard, and articles of paper, pulp, and paperboard	121.8	119.6	117.3	114.3	113.6	110.9	109.8	107.1	107.1	106.6	107.4	105.3
66	Nonmetallic mineral manufactures, n.e.s.	109.4	110.5	111.1	112.1	111.6	110.5	111.6	110.7	111.4	112.3	111.8	112.9
68	Nonferrous metals	108.4	107.9	109.5	107.5	105.5	106.6	107.5	105.8	102.4	99.4	100.6	98.8
7	**Machinery and transport equipment**	105.4	105.2	105.3	105.5	105.3	105.5	105.4	105.7	105.3	105.3	105.2	105.2
71	Power generating machinery and equipment	117.4	117.1	118.2	118.9	119.2	119.4	119.6	120.5	120.1	120.3	120.4	120.5
72	Machinery specialized for particular industries	114.1	114.3	115.4	115.0	115.0	116.4	116.2	115.8	116.1	116.2	116.3	116.3
74	General industrial machines and parts, n.e.s., and machine parts	112.5	112.3	113.3	113.8	113.7	114.0	114.0	114.6	114.8	114.8	114.9	115.3
75	Computer equipment and office machines	74.2	74.2	73.0	72.8	72.5	71.8	71.3	71.3	70.1	69.6	68.7	68.5
76	Telecommunications and sound recording and reproducing apparatus and equipment	106.9	105.3	105.8	105.7	107.6	107.8	107.2	107.6	107.4	106.6	106.6	106.8
77	Electrical machinery and equipment	103.7	103.6	103.5	103.7	103.1	103.2	103.1	102.3	101.3	101.1	101.2	100.9
78	Road vehicles	109.1	109.1	109.0	109.0	109.1	109.0	109.1	109.2	109.1	109.2	109.2	109.5
87	**Professional, scientific, and controlling instruments and apparatus**	114.1	113.9	114.4	114.9	115.0	114.8	114.8	115.4	115.3	115.9	115.8	115.8

34. U.S. import price indexes by Standard International Trade Classification

[1990 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1995		1996									
		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
0	**Food and live animals**	112.7	112.2	107.4	112.1	110.5	115.1	114.9	110.0	109.3	109.0	112.2	113.0
01	Meat and meat preparations	83.5	84.2	82.6	80.6	79.2	78.8	78.5	77.7	78.2	86.1	86.6	88.2
03	Fish and crustaceans, mollusks, and other aquatic invertebrates	119.0	118.0	117.2	118.0	118.4	119.3	119.5	121.1	118.7	119.9	120.5	120.7
04	Cereals and cereal preparations	106.0	108.3	109.4	108.4	107.4	107.2	119.8	119.1	112.3	109.4	107.7	105.4
05	Vegetables, fruit, and nuts, prepared fresh or dry	114.3	121.1	105.9	120.1	116.6	130.4	126.6	112.5	114.1	112.6	121.9	125.4
06	Sugars, sugar preparations, and honey	102.5	102.2	101.8	100.5	100.5	101.6	101.9	101.2	100.8	99.8	99.6	100.7
07	Coffee, tea, cocoa, spices, and manufactures thereof	148.4	133.8	133.8	140.5	136.1	141.1	143.7	135.5	132.5	125.0	128.0	125.0
1	**Beverages and tobacco**	116.1	117.6	117.5	117.7	118.3	119.0	119.3	119.4	120.0	120.3	120.9	120.9
11	Beverages	115.6	115.8	116.1	116.2	116.0	116.5	116.4	116.5	116.7	117.2	117.7	117.9
2	**Crude materials, inedible, except fuels**	126.0	125.2	124.6	123.1	119.3	118.1	115.9	116.6	114.7	115.9	120.0	118.1
23	Crude rubber (including synthetic and reclaimed)	145.5	155.1	156.3	148.2	155.2	144.5	140.3	140.5	137.6	132.5	132.6	129.2
24	Cork and wood	139.6	135.8	138.0	142.0	140.2	145.4	152.4	160.5	157.3	170.4	178.0	167.8
25	Pulp and waste paper	122.2	122.1	114.5	104.8	88.3	81.7	67.1	69.9	74.3	72.5	74.9	76.2
27	Crude fertilizers and crude minerals	100.2	99.4	–	–	–	–	–	–	–	–	–	–
28	Metalliferous ores and metal scrap	108.9	108.3	108.8	107.9	108.4	108.6	107.3	108.2	101.9	101.2	103.7	104.5
29	Crude animal and vegetable materials, n.e.s.	158.6	153.1	–	–	–	–	–	–	–	–	–	–
3	**Mineral fuels, lubricants, and related products**	75.8	79.2	82.9	81.8	88.6	95.7	92.2	87.0	88.6	90.6	96.9	102.8
33	Petroleum, petroleum products, and related materials	75.6	79.1	82.8	81.6	88.6	96.3	92.7	87.2	88.9	90.8	97.4	103.3
34	Gas, natural and manufactured	77.5	80.0	83.7	83.5	89.1	90.6	88.1	85.8	85.5	88.6	92.1	99.2
35	Electrical energy	74.8	75.6	–	–	–	–	–	–	–	–	–	–
4	**Animal and vegetable oils, fats, and waxes**	176.1	176.8	–	–	–	–	–	–	–	–	–	–
5	**Chemicals and related products, n.e.s.**	111.9	111.9	112.1	112.1	112.0	111.3	111.3	110.2	110.2	110.2	110.5	110.5
52	Inorganic chemicals	113.2	113.3	113.6	114.1	114.7	114.0	113.9	112.3	113.0	112.9	113.0	116.3
53	Dying, tanning, and coloring materials	109.4	109.7	110.3	111.6	111.4	111.2	110.8	110.2	109.7	110.3	110.7	109.3
54	Medicinal and pharmaceutical products	129.7	129.5	128.7	128.1	127.3	127.4	126.4	126.0	125.6	126.3	128.1	126.3
55	Essential oils; polishing and cleaning preparations	124.8	125.2	130.4	128.2	126.6	127.0	125.1	122.4	122.9	123.6	122.3	123.6
56	Fertilizers	110.8	113.0	–	–	–	–	–	–	–	–	–	–
57	Plastics in primary forms (12/92 = 100)	109.9	111.5	112.1	112.5	111.8	113.5	112.0	106.0	104.7	100.7	102.1	101.9
58	Plastics in nonprimary forms (12/92 = 100)	109.2	106.9	105.2	101.5	100.9	97.7	97.7	98.9	98.2	99.9	98.4	99.1
59	Chemical materials and products, n.e.s.	110.8	112.1	113.4	114.4	115.5	115.4	115.5	115.2	114.2	113.7	115.6	115.3
6	**Manufactured goods classified chiefly by materials**	113.9	113.6	113.1	112.8	112.5	112.0	111.2	111.0	109.8	109.0	108.7	107.6
62	Rubber manufactures, n.e.s.	106.8	106.6	105.7	105.8	105.0	105.0	105.3	105.1	104.5	104.3	104.3	103.9
64	Paper, paperboard, and articles of paper, pulp, and paperboard	136.1	136.7	135.6	135.4	133.7	131.4	127.8	126.7	123.8	121.1	117.4	113.3
66	Nonmetallic mineral manufactures, n.e.s.	112.0	112.1	112.4	112.3	113.2	113.6	113.4	113.1	113.2	113.4	114.0	113.9
68	Nonferrous metals	101.9	102.2	101.3	100.4	100.1	99.3	98.5	98.7	94.2	91.5	91.2	89.5
69	Manufactures of metals, n.e.s.	112.3	111.5	111.6	112.2	111.7	111.8	110.8	110.7	111.2	111.6	111.4	111.1
7	**Machinery and transport equipment**	109.7	109.7	109.5	109.4	108.9	108.6	108.2	107.9	107.8	107.6	107.8	107.5
72	Machinery specialized for particular industries	116.3	118.0	117.4	117.9	118.9	117.6	117.3	117.0	116.7	117.0	117.2	117.2
74	General industrial machines and parts, n.e.s., and machine parts	117.5	117.6	117.7	117.2	117.0	116.6	116.5	116.4	116.6	116.5	117.3	117.1
75	Computer equipment and office machines	82.7	82.2	81.9	81.3	79.7	79.0	77.8	76.8	76.6	76.0	75.3	74.8
76	Telecommunications and sound recording and reproducing apparatus and equipment	97.2	97.7	97.3	96.9	96.5	96.4	95.7	95.5	95.2	94.8	94.8	94.6
77	Electrical machinery and equipment	106.4	106.1	105.9	105.4	104.7	103.9	103.2	102.5	101.9	101.1	101.0	100.6
78	Road vehicles	117.8	117.7	117.5	117.5	117.4	117.4	117.4	117.3	117.5	117.5	117.9	117.8
85	Footwear	102.7	102.8	102.9	102.9	103.3	103.3	103.2	103.2	102.3	102.7	102.9	102.7
88	Photographic apparatus, equipment, and supplies, and optical goods, n.e.s.	114.6	114.7	114.1	113.4	113.1	112.5	111.7	110.9	110.5	110.9	111.3	110.9

35. U.S. export price indexes by end-use category

[1990 = 100]

Category	1995	1996									
	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
ALL COMMODITIES	109.4	109.9	109.7	109.5	110.2	110.6	110.4	109.8	109.6	108.7	108.4
Foods, feeds, and beverages	125.5	128.0	128.1	130.1	137.0	141.6	138.8	136.7	136.2	124.6	120.8
Agricultural foods, feeds, and beverages	126.6	129.7	129.9	132.4	140.3	145.4	141.9	139.1	138.3	125.6	121.3
Nonagricultural (fish, beverages) food products	112.5	109.8	109.6	107.1	104.3	105.3	108.9	112.5	114.3	112.6	113.6
Industrial supplies and materials	111.6	112.1	110.8	109.8	109.6	109.7	109.3	108.7	108.3	108.9	109.2
Agricultural industrial supplies and materials	114.9	113.4	111.5	110.2	109.8	110.6	109.6	107.3	109.2	111.1	111.8
Fuels and lubricants	95.2	98.8	98.4	99.6	102.8	102.8	101.8	101.5	101.8	103.8	106.5
Nonagricultural supplies and materials, excluding fuel and building materials	111.2	111.5	109.9	108.5	107.9	107.9	107.8	107.3	106.3	106.5	106.3
Selected building materials	144.6	145.1	145.4	144.6	142.7	142.1	141.3	140.8	142.0	143.7	144.3
Capital goods	105.3	105.5	105.7	105.6	105.7	105.6	105.9	105.6	105.5	105.3	105.3
Electric and electrical generating equipment	109.1	108.9	108.9	108.9	108.9	109.0	109.0	109.2	109.0	108.9	108.7
Nonelectrical machinery	101.4	101.6	101.6	101.7	101.8	101.5	101.4	100.8	100.6	100.4	100.4
Automotive vehicles, parts, and engines	109.0	109.0	109.0	108.9	108.9	109.1	109.1	109.0	109.2	109.2	109.4
Consumer goods, excluding automotive	109.8	110.2	110.5	110.6	111.0	110.7	110.8	110.9	111.0	111.2	111.2
Nondurables, manufactured	112.2	112.9	112.7	112.9	113.0	113.2	113.3	113.3	113.3	113.5	113.3
Durables, manufactured	107.5	107.7	108.1	108.1	108.4	107.7	108.2	108.4	108.6	108.9	108.8
Agricultural commodities	124.0	126.1	125.8	127.5	133.6	137.8	134.8	132.2	131.9	122.4	119.1
Nonagricultural commodities	107.8	108.1	107.8	107.5	107.5	107.4	107.5	107.3	107.1	107.2	107.3

36. U.S. import price indexes by end-use category

[1990 = 100]

Category	1995	1996									
	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
ALL COMMODITIES	106.8	107.0	106.8	107.5	108.4	107.6	106.5	106.4	106.5	107.7	108.1
Foods, feeds, and beverages	117.0	114.3	117.7	116.1	119.9	120.5	117.4	115.8	114.9	117.1	117.2
Agricultural foods, feeds, and beverages	115.8	112.2	116.6	114.3	119.2	120.1	115.2	113.8	112.1	114.9	115.1
Nonagricultural (fish, beverages) food products	119.7	119.4	120.0	120.4	121.2	121.4	122.6	120.7	121.8	122.2	122.4
Industrial supplies and materials	99.4	100.6	99.7	102.7	105.6	103.5	101.0	101.1	101.8	104.9	107.0
Fuels and lubricants	80.5	84.3	83.2	90.2	97.6	94.0	88.7	90.2	92.2	98.5	104.3
Petroleum and petroleum products	78.6	82.4	81.3	88.2	95.7	92.1	86.7	88.4	90.3	97.0	102.9
Paper and paper base stocks	134.4	131.3	128.6	122.6	119.1	112.3	111.9	111.1	108.4	106.5	104.0
Materials associated with nondurable supplies and materials	112.4	111.8	111.2	112.6	111.3	111.2	110.4	110.4	110.3	110.1	110.2
Selected building materials	120.8	121.6	123.0	122.6	124.7	128.1	132.3	130.9	135.6	140.8	135.7
Unfinished metals associated with durable goods	105.1	104.4	103.9	103.7	103.2	102.5	102.7	99.8	98.5	99.3	98.8
Nonmetals associated with durable goods	110.2	107.9	107.5	108.0	107.3	107.5	105.1	104.0	103.8	104.1	103.6
Capital goods	106.0	106.0	105.6	105.0	104.4	103.8	103.3	103.1	102.8	102.7	102.4
Electric and electrical generating equipment	112.5	112.8	112.3	112.0	111.6	111.2	110.7	110.6	110.5	110.5	110.7
Nonelectrical machinery	104.2	103.9	103.5	102.9	102.2	101.5	100.9	100.6	100.2	100.1	99.7
Automotive vehicles, parts, and engines	115.6	115.3	115.5	115.3	115.4	115.3	115.1	115.3	115.3	115.7	115.4
Consumer goods, excluding automotive	108.3	108.3	108.3	108.1	108.1	108.1	107.8	107.7	107.7	107.9	107.7
Nondurables, manufactured	108.1	108.2	108.1	108.1	108.2	108.4	108.3	108.0	108.1	108.3	108.1
Durables, manufactured	107.6	107.5	107.3	107.3	107.2	107.0	106.9	106.8	106.8	106.9	106.7
Nonmanufactured consumer goods	115.3	116.2	118.0	114.5	114.6	114.5	111.7	112.2	111.8	113.2	113.7

37. U.S. international price indexes for selected categories of services

[1990 = 100]

Category	1994		1995				1996		
	Sept.	Dec.	Mar.	June	Sept	Dec.	Mar.	June	Sept.
Air freight (inbound)	108.6	110.4	115.3	118.2	112.6	113.3	110.1	109.2	109.8
Air freight (outbound)	96.2	97.3	98.4	98.4	98.9	98.1	97.6	97.9	97.4
Air passenger fares (U.S. carriers)	121.4	113.8	116.1	128.6	126.5	117.4	120.0	127.4	131.1
Air passenger fares (foreign carriers)	118.1	110.0	113.8	125.2	121.4	115.3	114.5	122.5	125.5
Ocean liner freight (inbound)	106.2	106.6	108.5	112.2	113.5	113.1	113.5	111.3	109.6

38. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted

[1992 = 100]

Item	Quarterly indexes											
	1993	1994				1995				1996		
	IV	I	II	III	IV	I	II	III	IV	I	II	III
Business												
Output per hour of all persons	100.9	100.5	100.6	101.1	101.1	100.4	100.8	101.2	101.0	101.5	101.8	101.8
Compensation per hour	103.3	104.0	104.2	104.7	105.5	106.2	107.3	108.3	109.4	110.3	111.4	112.5
Real compensation per hour	99.3	99.5	99.0	98.6	98.8	98.9	98.9	99.3	99.8	99.8	99.9	100.2
Unit labor costs	102.4	103.6	103.6	103.6	104.4	105.8	106.5	107.0	108.3	108.6	109.4	110.5
Unit nonlabor payments	104.9	104.5	105.7	107.6	107.8	107.4	107.8	108.3	106.7	107.4	107.7	106.8
Implicit price deflator	103.3	103.9	104.4	105.1	105.6	106.4	106.9	107.5	107.8	108.2	108.8	109.1
Nonfarm business												
Output per hour of all persons	100.8	100.3	100.6	101.0	101.1	100.5	100.9	101.3	101.1	101.5	101.7	101.6
Compensation per hour	103.0	103.8	104.1	104.5	105.4	106.2	107.2	108.2	109.3	110.2	111.3	112.2
Real compensation per hour	99.0	99.2	98.9	98.4	98.7	98.7	98.8	99.2	99.6	99.7	99.7	100.0
Unit labor costs	102.2	103.4	103.5	103.5	104.2	105.6	106.3	106.8	108.1	108.5	109.4	110.4
Unit nonlabor payments	105.3	104.8	106.3	108.4	108.4	108.2	108.5	108.9	107.1	107.4	107.3	106.4
Implicit price deflator	103.3	103.9	104.5	105.3	105.7	106.5	107.1	107.5	107.8	108.1	108.7	109.0
Nonfinancial corporations												
Output per hour of all employees	102.5	102.7	102.6	102.4	102.7	101.8	102.4	103.7	104.3	104.6	105.0	105.9
Compensation per hour	102.9	103.8	103.8	104.1	104.7	105.3	106.3	107.3	108.3	109.0	110.1	111.2
Real compensation per hour	98.9	99.2	98.6	98.0	98.0	97.9	98.0	98.4	98.8	98.6	98.7	99.1
Total unit costs	100.1	101.3	100.5	101.0	100.9	102.5	103.0	102.5	102.8	102.9	103.1	103.1
Unit labor costs	100.4	101.0	101.2	101.6	101.9	103.4	103.8	103.5	103.9	104.3	104.9	105.0
Unit nonlabor costs	99.2	102.1	98.7	99.3	98.3	100.0	100.9	99.7	100.0	99.3	98.4	98.1
Unit profits	128.4	120.5	134.5	136.5	141.5	130.9	130.1	142.1	140.4	145.1	147.8	147.3
Unit nonlabor payments	106.1	106.4	107.1	108.0	108.4	107.2	107.8	109.6	109.4	110.0	110.0	109.7
Implicit price deflator	102.2	102.8	103.1	103.7	104.0	104.7	105.1	105.5	105.7	106.1	106.5	106.5
Manufacturing												
Output per hour of all persons	103.1	104.8	106.2	106.6	107.7	108.3	109.1	110.5	111.5	113.0	113.8	115.6
Compensation per hour	103.6	104.4	104.7	105.5	106.4	107.2	108.4	109.7	110.9	111.0	112.5	113.8
Real compensation per hour	99.5	99.9	99.5	99.4	99.6	99.7	99.9	100.6	101.1	100.4	100.8	101.4
Unit labor costs	100.5	99.7	98.6	99.0	98.8	99.0	99.4	99.3	99.4	98.2	98.9	98.5

39. Annual indexes of multifactor productivity and related measures, selected years

[1987 = 100]

Item	1960	1970	1973	1980	1988	1989	1990	1991	1992	1993	1994
Private business											
Productivity:											
Output per hour of all persons	53.5	74.8	83.0	89.1	100.9	101.0	101.9	102.9	105.9	106.4	107.3
Output per unit of capital services	115.9	115.1	120.1	105.8	101.3	101.3	99.8	97.0	98.1	99.1	100.7
Multifactor productivity	70.5	87.2	95.3	96.0	100.5	100.2	100.1	99.1	100.5	101.0	101.8
Output	37.8	57.4	67.9	79.9	104.3	107.0	107.9	106.5	109.3	112.5	117.4
Inputs:											
Labor input	66.7	74.2	78.7	86.8	104.2	107.2	107.8	106.5	107.5	110.4	114.8
Capital services	32.6	49.9	56.6	75.5	102.9	105.7	108.1	109.8	111.4	113.5	116.6
Combined units of labor and capital input	53.6	65.8	71.3	83.2	103.8	106.7	107.9	107.5	108.7	111.3	115.4
Capital per hour of all persons	46.2	65.0	69.2	84.2	99.6	99.7	102.1	106.1	108.0	107.4	106.6
Private nonfarm business											
Productivity:											
Output per hour of all persons	57.7	77.3	85.6	90.6	100.9	100.7	101.3	102.5	105.1	105.6	106.4
Output per unit of capital services	122.6	120.5	125.2	108.2	101.3	100.8	99.1	96.2	96.9	98.1	99.3
Multifactor productivity	74.9	89.9	98.1	97.7	100.5	99.9	99.4	98.5	99.6	100.2	100.7
Output	37.4	57.4	68.3	80.2	104.5	107.1	107.8	106.4	108.9	112.4	117.1
Inputs:											
Labor input	61.4	72.0	76.9	85.7	104.4	107.6	108.3	106.8	108.0	111.2	115.6
Capital services	30.5	47.7	54.5	74.2	103.2	106.2	108.8	110.6	112.4	114.7	118.0
Combined units of labor and capital input	49.9	63.9	69.6	82.1	104.0	107.2	108.5	107.9	109.3	112.2	116.3
Capital per hour of all persons	47.0	64.1	68.3	83.8	99.6	99.9	102.2	106.6	108.5	107.7	107.1
Manufacturing											
Productivity:											
Output per hour of all persons	45.9	61.3	69.4	79.1	101.1	102.8	104.7	107.2	111.1	113.4	–
Output per unit of capital services	122.7	116.6	126.9	102.5	101.6	100.6	97.0	93.0	93.5	94.5	–
Multifactor productivity	67.6	80.1	87.8	86.4	100.6	100.3	99.8	99.7	102.4	103.5	–
Output	40.8	61.6	74.0	82.1	104.2	106.4	105.9	104.1	107.2	111.0	–
Inputs:											
Hours of all persons	88.9	100.6	106.6	103.8	103.1	103.5	101.2	97.1	96.5	97.8	–
Capital services	33.2	52.8	58.3	80.1	102.6	105.8	109.2	111.9	114.6	117.4	–

– Data not available.

NOTE: Productivity and output in this table have not been revised for consistency with the December 1991 comprehensive revisions to the National Income and Product Accounts.

40. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years

[1992 = 100]

Item	1960	1970	1973	1984	1986	1988	1989	1990	1991	1993	1994	1995
Business												
Output per hour of all persons	51.5	70.4	78.2	90.3	94.2	94.6	95.3	96.1	96.7	100.2	100.7	101.2
Compensation per hour	13.7	23.6	29.0	69.8	77.0	83.5	85.8	90.7	95.1	102.5	104.5	108.2
Real compensation per hour	64.8	85.4	91.7	94.2	98.5	99.0	97.1	97.4	97.9	99.5	99.0	99.7
Unit labor costs	26.6	33.6	37.1	77.2	81.7	88.3	90.0	94.4	98.3	102.3	103.8	107.0
Unit nonlabor payments	24.6	30.8	36.8	78.5	81.6	84.1	91.3	93.5	96.6	102.8	106.5	107.5
Implicit price deflator	25.8	32.6	37.0	77.7	81.6	86.8	90.5	94.0	97.7	102.5	104.7	107.1
Nonfarm business												
Output per hour of all persons	54.9	72.7	80.8	91.5	94.9	95.2	95.7	96.2	96.9	100.2	100.7	101.3
Compensation per hour	14.3	23.8	29.2	70.3	77.3	83.6	85.9	90.6	95.1	102.3	104.3	108.2
Real compensation per hour	67.8	86.2	92.4	94.9	99.0	99.2	97.1	97.3	97.9	99.3	98.8	99.6
Unit labor costs	26.0	32.8	36.2	76.8	81.5	87.8	89.7	94.2	98.1	102.1	103.7	106.7
Unit nonlabor payments	24.0	30.3	34.3	77.4	81.3	83.8	90.7	93.1	96.8	103.4	107.0	108.6
Implicit price deflator	25.3	31.9	35.5	77.0	81.4	86.4	90.0	93.8	97.6	102.5	104.9	107.2
Nonfinancial corporations												
Output per hour of all employees	54.5	68.2	73.6	88.9	93.0	96.0	94.9	95.9	97.4	101.3	102.6	103.6
Compensation per hour	15.5	25.2	30.6	71.3	78.2	84.4	86.6	91.2	95.5	102.2	104.1	107.3
Real compensation per hour	73.4	91.0	96.6	96.3	100.1	100.1	98.0	97.9	98.4	99.2	98.5	98.8
Total unit costs	27.4	35.9	40.2	81.2	84.9	88.4	92.5	96.2	99.4	100.6	100.9	102.7
Unit labor costs	28.4	36.9	41.5	80.2	84.1	87.9	91.3	95.1	98.0	100.9	101.4	103.6
Unit nonlabor costs	24.8	33.4	36.7	83.8	87.0	89.6	95.8	99.0	103.1	99.9	99.6	100.1
Unit profits	52.3	47.3	59.2	105.4	90.1	107.7	98.1	93.9	91.9	114.8	133.4	136.0
Unit nonlabor payments	31.3	36.6	41.9	88.9	87.8	93.8	96.3	97.8	100.5	103.4	107.5	108.7
Implicit price deflator	29.3	36.8	41.6	83.0	85.3	89.8	92.9	96.0	98.8	101.7	103.4	105.2
Manufacturing												
Output per hour of all persons	41.2	55.0	62.5	80.6	87.4	90.9	92.5	94.2	96.5	102.1	106.1	109.8
Compensation per hour	14.9	23.8	28.6	71.4	78.6	84.0	86.7	90.9	95.7	102.4	105.1	109.0
Real compensation per hour	70.7	86.1	90.5	96.4	100.6	99.6	98.1	97.6	98.6	99.4	99.5	100.3
Unit labor costs	36.1	43.3	45.8	88.5	89.9	92.3	93.7	96.5	99.1	100.3	99.0	99.3
Unit nonlabor payments	26.8	30.5	37.5	93.0	86.4	91.8	96.9	100.6	99.9	101.1	–	–
Implicit price deflator	30.4	35.4	40.7	91.3	87.8	92.0	95.7	99.0	99.6	100.8	–	–

– Data not available.

41. Annual indexes of output per hour for selected industries

[1987 = 100]

Industry	SIC	1973	1984	1985	1986	1988	1989	1990	1991	1992	1993	1994
Iron mining, usable ore	101	50.8	70.0	76.1	79.3	103.1	98.4	88.5	85.0	83.3	86.9	82.2
Copper mining, recoverable metal	102	42.4	75.9	93.6	109.7	109.1	106.5	102.7	100.5	115.2	118.1	123.6
Coal mining	12	68.9	83.4	85.1	92.4	110.5	116.4	118.3	122.1	132.7	145.4	150.4
Crude petroleum and natural gas production	131	173.5	81.9	83.0	90.3	100.9	98.0	96.9	97.9	102.1	106.5	113.1
Nonmetallic minerals, except fuels	14	86.5	94.0	95.1	95.1	101.0	99.6	101.4	98.5	102.7	100.2	103.9
Meat packing plants	2011	65.1	93.6	98.3	98.7	100.9	97.9	96.8	100.2	104.5	105.1	101.2
Sausages and other prepared meats	2013	67.2	99.3	97.8	98.6	107.1	105.9	97.4	95.9	104.6	105.0	101.6
Poultry dressing and processing	2015	58.0	99.1	100.5	95.6	96.2	105.2	108.6	115.4	119.6	119.8	119.9
Cheese, natural and processed	2022	72.1	85.1	88.2	93.5	99.8	102.6	108.2	114.6	121.8	115.5	117.5
Fluid milk	2026	54.6	88.9	92.0	96.0	102.3	103.7	103.3	104.3	104.0	107.1	113.3
Canned fruits and vegetables	2033	70.1	87.4	92.8	99.1	98.7	92.9	93.8	100.1	101.5	106.6	101.9
Frozen fruits and vegetables	2037	77.9	99.7	95.2	103.3	94.0	98.0	90.0	94.6	96.4	102.8	109.6
Flour and other grain mill products	2041	68.5	91.7	95.8	95.9	102.5	102.5	107.9	108.3	111.9	122.2	126.8
Cereal breakfast foods	2043	65.6	92.8	97.1	98.6	98.6	95.5	100.2	102.3	99.1	95.5	106.6
Rice milling	2044	59.3	63.8	68.6	72.7	83.1	97.5	104.9	99.3	101.4	129.5	109.2
Wet corn milling	2046	24.1	74.9	74.6	97.3	96.1	103.6	103.8	100.4	101.8	111.9	110.0
Prepared feeds for animals and fowls	2047,48	51.6	80.2	96.9	95.2	101.5	103.7	107.0	108.0	108.1	110.7	108.5
Bakery products	205	82.3	93.4	95.6	100.1	93.4	91.0	93.2	89.2	89.4	90.3	91.0
Raw and refined cane sugar	2061,62	78.5	89.1	96.6	96.9	99.7	101.8	107.7	110.3	111.7	120.2	111.8
Beet sugar	2063	75.9	79.7	73.4	80.8	97.6	92.1	97.6	102.3	110.8	109.8	122.7
Malt beverages	2082	43.3	77.7	73.7	85.0	99.1	105.2	110.6	109.6	113.4	112.5	116.8
Bottled and canned soft drinks	2086	49.2	81.6	85.2	91.4	109.8	119.4	126.7	135.1	144.2	144.7	147.8
Fresh or frozen prepared fish	2092	93.3	89.4	87.8	91.2	100.0	94.6	88.9	87.4	95.6	100.1	94.3
Cigarettes, chewing and smoking tobacco	211,3	79.4	91.3	93.6	95.4	104.8	106.7	109.9	111.6	113.4	101.6	–
Cotton and synthetic broadwoven fabrics	221,2	58.1	91.1	94.8	101.1	100.0	103.9	108.1	113.8	118.4	125.8	133.8
Hosiery	2251,52	63.2	102.4	100.9	102.5	108.1	110.9	109.2	115.7	122.2	117.3	126.1
Yarn spinning mills	2281	55.9	86.2	89.6	93.2	98.5	103.3	106.0	105.5	114.1	120.0	126.9
Men's and boys' suits and coats	231	75.6	93.2	106.3	103.5	102.4	101.9	98.7	91.4	102.4	109.0	130.1
Housefurnishings, except curtains and draperies	2392	87.2	83.6	92.4	93.6	99.8	96.8	101.3	110.9	117.9	118.7	115.4
Sawmills and planing mills, general	2421	68.3	89.7	93.5	102.3	101.2	100.1	99.9	102.9	108.9	101.5	102.6
Hardwood dimension and flooring mills	2426	84.0	85.6	95.1	98.8	97.5	96.9	95.7	98.6	105.4	111.2	111.5
Millwork	2431	104.2	100.4	97.4	102.2	98.2	97.8	97.8	95.7	93.4	92.6	89.7
Wood kitchen cabinets	2434	80.5	91.6	87.1	85.2	97.7	91.1	93.6	92.3	102.0	101.9	95.9
Hardwood veneer and plywood	2435	80.2	83.9	84.5	83.2	99.0	98.9	92.2	93.3	104.1	105.8	94.4
Softwood veneer and plywood	2436	67.7	87.1	88.3	90.4	100.6	102.6	108.3	114.3	109.2	103.4	101.9
Wood containers	244	–	103.4	99.6	98.7	103.2	108.8	111.6	113.5	109.8	100.5	101.8
Wood household furniture	2511,17	88.5	96.9	95.0	99.6	100.8	101.2	102.5	101.3	106.5	106.2	106.4
Upholstered household furniture	2512	75.1	96.2	96.3	101.7	98.8	101.2	107.7	115.1	120.0	120.0	130.2
Metal household furniture	2514	68.7	84.9	89.4	95.3	100.2	100.7	101.4	107.2	109.5	106.8	99.5
Mattresses and bedsprings	2515	68.0	84.1	79.5	85.5	92.5	106.5	106.2	108.9	103.4	104.4	105.9
Wood office furniture	2521	82.5	99.3	99.4	96.2	95.4	95.4	97.4	101.3	107.1	104.4	104.0
Office furniture, except wood	2522	70.6	97.6	96.9	100.6	96.0	98.7	95.6	92.9	93.9	94.3	94.3
Pulp, paper, and paperboard mills	261,2,3	67.1	89.7	87.6	93.3	103.1	103.2	102.6	102.1	104.7	104.5	111.4
Corrugated and solid fiber boxes	2635	70.3	96.7	99.6	102.8	99.8	98.1	100.9	100.8	101.9	105.5	110.6
Folding paperboard boxes	2657	86.4	93.4	90.0	88.5	101.6	105.4	105.3	110.9	116.4	117.9	122.2
Paper and plastic bags	2673,74	90.7	99.9	99.7	101.8	97.7	93.7	92.2	89.5	93.9	92.0	96.0
Alkalies and chlorine	2812	38.4	66.6	70.8	97.7	101.6	92.5	92.3	86.2	87.7	84.8	84.1
Inorganic pigments	2816	72.6	81.4	84.4	88.6	103.3	107.8	104.5	98.9	107.8	107.9	113.2
Industrial inorganic chemicals, n.e.s.	2819 pt.	90.6	88.4	87.3	88.6	97.5	105.9	109.0	102.3	104.9	110.7	111.1
Synthetic fibers	2823,24	38.4	79.8	79.3	90.8	102.9	104.1	98.7	97.5	99.3	112.3	119.4
Soaps and detergents	2841	89.1	90.5	91.5	92.3	102.4	109.4	128.2	126.4	115.3	112.6	111.2
Cosmetics and other toiletries	2844	88.6	87.3	90.3	96.6	105.2	102.7	101.1	103.9	108.4	108.5	111.8
Paints and allied products	285	63.2	93.6	96.9	98.0	101.4	103.3	106.3	104.3	102.9	108.7	116.5
Industrial inorganic chemicals, n.e.c.	2869	73.1	89.6	87.8	92.3	110.5	110.5	99.0	92.6	91.6	88.5	96.6
Nitrogenous fertilizers	2873	65.4	101.1	100.7	90.5	101.3	103.3	107.7	108.4	111.8	117.5	111.1
Phosphatic fertilizers	2874	62.4	88.4	84.2	79.6	92.0	83.3	99.7	107.3	105.0	105.8	122.4
Fertilizers, mixing only	2875	90.5	97.8	100.8	95.1	104.7	112.4	112.8	114.6	127.1	139.1	118.9
Agricultural chemicals, n.e.c.	2879	74.3	98.8	92.9	93.2	108.4	108.9	106.2	102.2	108.4	111.0	115.6
Petroleum refining	291	84.0	78.7	84.7	94.9	105.3	109.6	109.2	106.6	111.3	120.1	123.8
Tires and inner tubes	301	56.0	88.8	89.3	92.6	102.9	103.8	103.0	102.4	107.8	116.5	119.9
Rubber and plastics hose and belting	3052	78.4	104.9	100.1	102.1	108.2	97.8	103.3	96.1	104.3	111.3	104.9
Miscellaneous plastics products, n.e.c.	308	72.8	86.4	88.2	88.9	100.1	101.1	105.3	107.5	114.0	116.2	119.7
Footwear, except rubber	314	90.7	98.8	100.3	101.9	102.3	100.9	92.8	93.1	93.3	97.2	102.7
Glass containers	3221	75.2	97.4	93.4	98.5	99.6	101.6	107.5	108.1	111.5	106.0	111.7
Cement, hydraulic	324	71.3	89.4	91.8	97.1	103.2	110.2	112.4	108.3	115.1	119.9	125.6
Clay construction products	3251,53,59	78.5	92.7	94.2	95.5	105.2	98.3	102.3	97.4	98.9	102.3	107.7
Clay refractories	3255	80.1	96.9	94.9	100.8	102.3	98.5	103.6	97.9	98.6	95.0	104.6
Concrete products	3271,72	92.5	98.3	99.5	104.4	102.1	104.8	103.8	104.9	103.2	109.3	107.9
Ready-mixed concrete	3273	99.1	92.9	93.6	96.0	100.2	101.0	100.2	96.7	98.2	96.9	93.1
Steel	331	64.2	81.3	85.8	89.7	113.5	108.5	110.5	108.2	117.7	134.2	142.7
Gray and ductile iron foundries	3321	91.3	99.1	96.9	99.3	108.0	106.9	107.9	104.6	107.7	113.1	115.7
Steel foundries	3324,25	105.8	102.4	99.5	104.9	95.5	96.3	96.9	94.8	95.6	101.5	100.3
Primary copper	3331	32.8	57.6	73.8	88.7	103.8	94.7	84.9	82.5	71.9	86.9	73.9
Primary aluminum	3334	73.6	100.7	97.6	102.7	102.3	104.8	106.5	110.6	109.7	105.7	98.6
Copper rolling and drawing	3351	77.5	84.7	86.2	92.3	93.0	89.1	90.7	86.4	83.0	89.2	95.1

See footnotes at end of table.

41. Continued—Annual indexes of output per hour for selected industries

[1987 = 100]

Industry	SIC	1973	1984	1985	1986	1988	1989	1990	1991	1992	1993	1994
Aluminum rolling and drawing	3353,54,55	79.0	92.3	85.7	95.8	96.3	90.6	91.2	90.3	96.5	93.9	99.8
Metal cans	3411	59.2	101.1	99.2	95.9	106.9	108.1	117.5	123.8	129.7	134.6	140.7
Hand and edge tools, n.e.c.	3423	108.6	97.9	98.8	97.1	100.5	101.0	95.0	93.1	93.1	93.3	101.8
Heating equipment, except electric	3433	78.0	91.6	91.9	96.2	113.7	105.0	114.0	119.4	121.2	121.8	124.8
Fabricated structural metal	3441	97.1	91.2	99.0	99.0	100.4	97.6	101.2	104.5	103.6	108.1	109.6
Metal doors, sash, and trim	3442	90.5	101.4	104.8	102.0	104.6	105.8	103.1	103.0	106.7	105.4	103.2
Fabricated plate work	3443	–	88.3	87.5	86.4	96.2	90.3	94.1	94.3	98.3	98.3	108.4
Bolts, nuts, rivets, and washers	3452	75.8	85.3	88.8	91.0	97.0	93.8	93.7	96.1	91.9	92.8	95.6
Automotive stampings	3465	74.9	100.5	94.5	95.7	102.8	101.8	96.1	97.3	113.8	120.8	124.5
Metal stampings, n.e.c.	3469	96.8	94.3	88.6	93.9	98.0	95.3	90.4	89.5	98.8	104.8	109.3
Valves and pipe fittings	3491,92,94	93.6	95.0	94.4	93.9	101.4	101.2	102.1	101.7	100.4	104.2	110.1
Fabricated pipe and fittings	3498	140.8	130.0	120.0	121.4	99.6	102.3	107.0	114.2	109.6	113.3	110.3
Internal combustion engines, n.e.c.	3519	83.1	90.2	92.0	98.5	106.3	113.2	108.4	103.3	101.2	104.3	118.3
Farm machinery and equipment	3523	108.6	112.7	101.6	95.7	112.8	124.0	131.8	125.3	119.1	123.7	134.2
Lawn and garden equipment	3524	70.0	79.3	82.4	93.2	97.5	93.2	94.8	95.8	108.7	114.7	116.3
Construction machinery	3531	87.9	91.6	92.2	99.1	107.6	110.2	109.6	101.0	100.6	107.0	123.7
Mining machinery	3532	102.2	90.2	93.7	95.1	102.0	107.0	98.4	90.0	90.1	109.5	97.4
Oil and gas field machinery	3533	156.9	126.0	115.2	105.9	123.1	116.1	113.9	110.9	125.7	122.1	123.6
Metal cutting machine tools	3541	101.4	87.2	89.9	92.0	94.8	99.9	99.2	94.8	113.0	111.4	109.2
Metal forming machine tools	3542	112.5	90.7	93.1	93.7	113.1	107.9	97.7	88.4	102.5	115.0	103.0
Machine tool accessories	3545	105.9	94.6	92.3	95.0	98.2	102.5	104.1	104.6	96.8	101.5	112.6
Pumps and pumping equipment	3561,94	84.0	92.0	91.9	92.7	105.7	101.3	103.4	102.5	98.6	105.2	109.3
Ball and roller bearings	3562	108.0	95.4	91.6	94.1	102.9	99.0	93.1	89.6	97.8	103.8	107.2
Air and gas compressors	3563	87.6	90.1	92.2	96.0	103.7	105.3	107.8	110.2	112.7	111.4	116.5
Refrigeration and heating equipment	3585	100.3	100.1	98.1	95.8	104.0	109.0	106.3	104.8	107.6	111.8	115.8
Carburetors, pistons, rings, and valves	3592	102.9	95.1	98.8	95.7	109.9	119.4	114.1	115.1	126.4	136.5	139.8
Transformers, except electronic	3612	100.2	95.4	97.0	99.3	102.8	104.3	107.3	110.7	126.5	121.7	141.2
Switchgear and switchboard apparatus	3613	88.2	92.2	95.1	95.9	109.1	106.5	106.5	103.9	114.6	123.0	124.5
Motors and generators	3621	89.0	93.3	94.9	96.8	102.8	103.6	100.9	104.4	111.5	127.0	123.2
Household cooking equipment	3631	61.8	92.0	90.3	104.6	116.1	96.8	99.5	104.9	100.9	103.7	127.5
Household refrigerators and freezers	3632	70.1	97.5	104.1	101.2	103.3	105.2	107.3	111.8	116.0	116.8	126.7
Household laundry equipment	3633	72.3	92.8	93.8	97.4	106.1	98.7	104.0	111.0	115.9	144.8	150.5
Household appliances, n.e.c.	3639	63.7	85.9	86.3	89.1	100.6	96.3	91.8	80.5	91.6	117.6	119.1
Electric lamp bulbs and tubes	3641	61.3	86.4	94.2	91.5	100.3	92.7	98.0	101.8	112.8	100.9	97.7
Lighting fixtures and equipment	3645,46,47,48	84.1	91.3	96.7	103.0	98.1	97.3	96.0	94.3	98.9	103.7	109.6
Household audio and video equipment	3651	22.3	84.7	96.3	106.9	106.2	120.5	124.1	135.7	151.8	163.1	175.7
Motor vehicles and equipment	371	68.7	91.1	95.3	95.1	103.2	103.3	102.4	96.7	104.3	105.4	108.6
Aircraft	3721	79.2	84.7	94.2	93.5	105.8	107.5	112.9	131.4	141.7	142.4	131.7
Instruments to measure electricity	3825	63.7	96.2	95.4	90.4	106.1	105.2	106.2	108.3	119.0	122.4	145.0
Photographic equipment and supplies	386	58.9	88.2	86.1	94.1	105.6	113.0	107.8	110.2	116.4	126.6	131.9
Railroad transportation, revenue traffic	4011	46.5	78.0	81.5	89.2	108.4	114.6	118.5	127.8	139.6	–	–
Bus carriers, class 1	411,13,14 pts.	116.8	100.1	96.1	95.6	107.9	104.6	–	–	–	–	–
Trucking, except local	4213	69.5	97.3	93.8	96.8	105.2	109.4	–	–	–	–	–
Air transportation	4512,13,22 pts.	54.3	88.8	92.0	93.8	99.5	95.8	92.9	92.5	96.9	103.8	105.7
Petroleum pipelines	4612,13	93.2	99.4	99.9	102.0	104.8	103.2	102.5	99.0	100.2	104.4	105.1
Telephone communications	481	42.7	84.5	88.9	95.0	106.2	111.6	113.3	119.8	127.7	134.5	135.7
Electric utilities	491,3 pt.	88.4	93.8	93.0	95.3	104.9	107.7	110.1	113.4	115.2	120.6	127.7
Gas utilities	492,3 pt	145.5	114.1	111.9	102.1	105.5	103.5	94.8	94.0	95.3	105.0	100.3
Scrap and waste materials	5093	–	89.1	93.4	97.7	95.4	86.0	98.6	98.9	101.7	109.4	106.6
Hardware stores	525	83.3	96.6	95.6	101.6	108.6	115.2	110.4	102.5	107.2	106.7	114.1
Department stores	531	60.8	90.4	92.6	97.4	99.2	96.9	94.2	98.2	101.2	105.0	108.5
Variety stores	533	148.9	141.9	129.2	106.7	101.9	124.5	151.3	154.3	167.7	170.4	155.2
Grocery stores	541	109.1	107.9	105.7	103.8	98.9	95.4	94.6	93.7	93.3	92.7	91.7
Retail bakeries	546	125.6	96.0	87.6	93.6	89.8	83.3	89.7	94.7	94.0	86.0	87.8
New and used car dealers	551	85.1	99.5	99.8	101.6	103.5	102.5	106.1	104.2	106.5	107.7	109.2
Auto and home supply stores	553	71.1	90.4	94.5	94.3	103.2	101.5	102.8	98.9	98.9	98.9	101.4
Gasoline service stations	554	59.5	87.0	93.5	101.8	103.0	105.1	102.6	104.3	109.7	112.4	115.0
Men's and boys' clothing stores	561	77.6	93.7	98.3	100.7	106.0	109.3	112.8	117.7	116.4	115.7	138.1
Women's clothing stores	562	58.9	98.0	99.8	107.0	97.5	99.1	100.8	101.9	110.7	116.2	115.9
Family clothing stores	565	76.2	106.2	103.1	103.3	102.4	105.5	104.9	106.9	112.3	111.6	116.7
Shoe stores	566	81.3	90.6	97.6	105.5	102.7	107.2	106.2	105.1	111.5	110.8	117.8
Furniture and homefurnishings stores	571	83.9	97.9	94.8	101.2	98.9	101.3	102.2	101.6	108.6	108.9	108.7
Household appliance stores	572	59.8	87.2	94.9	106.5	98.5	103.5	102.8	105.2	113.9	114.6	126.3
Radio, television, and computer stores	573	45.6	79.1	89.3	94.1	119.3	115.7	120.9	129.6	143.5	157.3	181.0
Eating and drinking places	58	110.3	98.9	96.2	99.3	102.8	102.2	104.0	103.1	102.4	103.1	103.8
Drug stores and proprietary stores	591	92.2	106.4	102.5	101.6	101.9	102.5	103.6	104.7	103.6	104.7	103.7
Liquor stores	592	95.0	93.6	101.9	93.8	98.2	101.1	105.2	105.9	108.4	100.5	96.7
Miscellaneous shopping goods stores	594	–	92.6	94.1	97.1	98.4	101.7	101.5	102.0	100.6	103.9	105.6
Commercial banks	602	81.2	89.6	94.3	96.2	103.4	102.2	108.6	112.3	117.2	129.9	–
Hotels and motels	701	102.4	101.6	101.2	98.9	97.6	95.0	96.0	99.0	107.6	106.5	110.0
Laundry, cleaning, and garment services	721	110.8	107.5	103.3	100.8	97.2	100.5	101.0	98.7	99.9	99.8	101.8
Beauty shops	723	85.9	98.5	96.1	96.9	95.1	99.6	96.8	94.8	99.7	95.9	100.0
Automotive repair shops	753	109.3	91.7	99.4	96.2	105.7	108.2	107.0	98.8	103.4	103.7	111.6

n.e.s. = not elsewhere specified.
n.e.c. = not elsewhere classified.
– Data not available.

42. Unemployment rates, approximating U.S. concepts, in nine countries, quarterly data seasonally adjusted

Country	Annual average		1994	1995				1996	
	1994	1995	IV	I	II	III	IV	I	II
United States	6.1	5.6	5.6	5.5	5.7	5.6	5.5	5.6	5.4
Canada	10.4	9.5	9.8	9.7	9.5	9.5	9.4	9.5	9.6
Australia	9.7	8.5	9.1	8.8	8.4	8.4	8.4	8.5	8.6
Japan	2.9	3.2	2.9	3.0	3.2	3.2	3.4	3.3	3.5
France	12.3	11.5	12.1	11.5	11.4	11.4	11.6	11.9	12.1
Germany	6.5	6.5	6.5	6.5	6.5	6.6	6.7	7.0	7.1
Italy[1]	11.3	12.0	11.7	12.0	12.1	11.9	11.9	12.0	12.5
Sweden	9.6	9.1	9.3	9.1	9.0	8.9	9.3	9.0	9.4
United Kingdom	9.6	8.8	9.1	8.9	8.8	8.8	8.6	8.4	8.3

1 Quarterly rates are for the first month of the quarter.

– Data not available.

NOTE: Quarterly figures for France, Germany, and the United Kingdom are calculated by applying annual adjustment factors to current published data and therefore should be viewed as less precise indicators of unemployment under U.S. concepts than the annual figures. See "Notes on the data" for information on breaks in series.

43. Annual data: Employment status of the working-age population, approximating U.S. concepts, 10 countries

[Numbers in thousands]

Employment status and country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Civilian labor force										
United States[1]	117,834	119,865	121,669	123,869	125,840	126,346	128,105	129,200	131,056	132,304
Canada	13,378	13,631	13,900	14,151	14,329	14,408	14,482	14,663	14,832	14,928
Australia	7,588	7,758	7,974	8,228	8,444	8,490	8,562	8,619	8,776	9,001
Japan	59,410	60,050	60,860	61,920	63,050	64,280	65,040	65,470	65,780	65,990
France	23,760	23,890	23,980	24,170	24,300	24,490	24,570	24,660	24,790	24,850
Germany	28,240	28,390	28,610	28,840	29,410	29,760	30,030	29,950	29,820	29,660
Italy	22,290	22,350	22,660	22,530	22,670	22,940	22,910	22,760	22,640	22,700
Netherlands	6,380	6,500	6,330	6,450	6,660	6,770	6,970	7,110	7,180	7,290
Sweden	4,443	4,437	4,494	4,552	4,597	4,591	4,520	4,443	4,418	4,460
United Kingdom	27,380	27,720	28,150	28,420	28,540	28,450	28,400	28,310	28,310	28,190
Participation rate[2]										
United States[1]	65.3	65.6	65.9	66.5	66.5	66.2	66.4	66.3	66.6	66.6
Canada	66.3	66.7	67.2	67.5	67.3	66.7	65.9	65.5	65.3	64.8
Australia	62.8	63.0	63.3	64.0	64.6	64.1	63.9	63.6	63.9	64.6
Japan	62.1	61.9	61.9	62.2	62.6	63.2	63.4	63.3	63.1	62.9
France	56.9	56.7	56.4	56.1	55.6	55.6	55.8	55.6	55.6	55.3
Germany	54.9	55.0	55.1	55.2	55.3	55.4	55.1	54.2	53.7	53.1
Italy	47.8	47.6	47.4	47.3	47.2	47.7	47.5	48.1	47.5	47.6
Netherlands	56.0	56.3	54.3	54.9	56.3	56.7	57.9	58.6	58.9	59.7
Sweden	67.0	66.4	66.9	67.3	67.4	67.0	65.7	64.5	63.9	64.3
United Kingdom	62.1	62.5	63.2	63.6	63.7	63.3	62.9	62.8	62.6	62.2
Employed										
United States[1]	109,597	112,440	114,968	117,342	118,793	117,718	118,492	120,259	123,060	124,900
Canada	12,095	12,422	12,819	13,086	13,165	12,916	12,842	13,015	13,292	13,506
Australia	6,974	7,129	7,398	7,720	7,859	7,676	7,637	7,680	7,921	8,235
Japan	57,740	58,320	59,310	60,500	61,710	62,920	63,620	63,810	63,860	63,890
France	21,240	21,320	21,520	21,850	22,100	22,140	22,010	21,750	21,740	22,000
Germany	26,380	26,590	26,800	27,200	27,950	28,480	28,660	28,230	27,880	27,720
Italy	20,610	20,590	20,870	20,770	21,080	21,360	21,230	20,430	20,080	19,970
Netherlands	5,740	5,850	5,850	5,990	6,250	6,370	6,570	6,640	6,650	6,760
Sweden	4,326	4,340	4,410	4,480	4,513	4,447	4,265	4,028	3,992	4,056
United Kingdom	24,300	24,860	25,730	26,350	26,550	25,930	25,520	25,340	25,580	25,710
Employment-population ratio[3]										
United States[1]	60.7	61.5	62.3	63.0	62.8	61.7	61.5	61.7	62.5	62.9
Canada	59.9	60.8	62.0	62.4	61.9	59.8	58.4	58.2	58.5	58.6
Australia	57.7	57.9	58.7	60.1	60.1	57.9	57.0	56.6	57.7	59.1
Japan	60.4	60.1	60.4	60.8	61.3	61.8	62.0	61.7	61.3	60.9
France	50.8	50.6	50.6	50.7	50.5	50.2	50.0	49.1	48.7	49.0
Germany	51.3	51.5	51.6	52.0	52.6	53.0	52.6	51.1	50.2	49.7
Italy	44.2	43.8	43.7	43.6	43.9	44.5	44.0	43.1	42.1	41.8
Netherlands	50.3	50.7	50.2	51.0	52.8	53.3	54.6	54.8	54.6	55.4
Sweden	65.2	65.0	65.7	66.2	66.1	64.9	62.0	58.5	57.7	58.5
United Kingdom	55.1	56.1	57.8	59.0	59.2	57.7	56.5	56.2	56.5	56.7
Unemployed										
United States[1]	8,237	7,425	6,701	6,528	7,047	8,628	9,613	8,940	7,996	7,404
Canada	1,283	1,208	1,082	1,065	1,164	1,492	1,640	1,649	1,541	1,422
Australia	613	629	576	508	585	814	925	939	856	766
Japan	1,670	1,730	1,550	1,420	1,340	1,360	1,420	1,660	1,920	2,100
France	2,520	2,570	2,460	2,320	2,200	2,350	2,560	2,910	3,050	2,850
Germany	1,860	1,800	1,810	1,640	1,460	1,280	1,370	1,720	1,940	1,940
Italy	1,680	1,760	1,790	1,760	1,590	1,580	1,680	2,330	2,560	2,720
Netherlands	640	650	480	450	410	400	390	470	520	530
Sweden	117	97	84	72	84	144	255	415	426	404
United Kingdom	3,080	2,860	2,420	2,070	1,990	2,520	2,880	2,970	2,730	2,480
Unemployment rate										
United States[1]	7.0	6.2	5.5	5.3	5.6	6.8	7.5	6.9	6.1	5.6
Canada	9.6	8.9	7.8	7.5	8.1	10.4	11.3	11.2	10.4	9.5
Australia	8.1	8.1	7.2	6.2	6.9	9.6	10.8	10.9	9.7	8.5
Japan	2.8	2.9	2.5	2.3	2.1	2.1	2.2	2.5	2.9	3.2
France	10.6	10.8	10.3	9.6	9.0	9.6	10.4	11.8	12.3	11.5
Germany	6.6	6.3	6.3	5.7	5.0	4.3	4.6	5.7	6.5	6.5
Italy	7.5	7.9	7.9	7.8	7.0	6.9	7.3	10.2	11.3	12.0
Netherlands	10.0	10.0	7.6	7.0	6.2	5.9	5.6	6.6	7.2	7.3
Sweden	2.6	2.2	1.9	1.6	1.8	3.1	5.6	9.3	9.6	9.1
United Kingdom	11.2	10.3	8.6	7.3	7.0	8.9	10.1	10.5	9.6	8.8

[1] Data for 1994 are not directly comparable with data for 1993 and earlier years. For additional information, see the box note under "Employment and Unemployment Data" in the notes to this section.

[2] Labor force as a percent of the working-age population.

[3] Employment as a percent of the working-age population.

NOTE: See "Notes on the data" for information on breaks in series for the United States, France, Italy, the Netherlands, and Sweden.

44. Annual indexes of manufacturing productivity and related measures, 12 countries

[1992 = 100]

Item and country	1960	1970	1973	1985	1986	1987	1988	1989	1990	1991	1993	1994	1995
Output per hour													
United States	–	–	–	83.7	85.9	91.4	93.5	94.0	95.7	97.9	103.6	108.1	111.9
Canada	40.5	60.4	72.2	94.1	92.6	93.5	93.9	94.3	95.8	96.3	101.8	105.6	107.2
Japan	14.0	38.0	48.1	77.3	76.9	81.2	84.8	89.5	95.4	99.4	100.5	101.2	106.6
Belgium	18.7	34.2	44.7	85.5	86.7	88.4	91.4	96.2	95.6	98.7	104.2	110.1	–
Denmark	29.5	52.1	66.1	95.6	90.0	89.6	92.9	96.1	96.0	97.9	106.4	–	–
France	23.0	45.5	53.9	83.8	85.2	86.7	92.7	97.4	99.1	98.7	101.8	110.4	113.7
Germany	29.0	51.9	60.9	88.7	89.3	88.1	91.2	94.3	98.2	101.7	101.2	108.5	112.0
Italy	19.6	36.8	43.9	81.5	82.6	85.0	86.6	89.4	92.8	95.3	104.5	106.9	111.2
Netherlands	19.9	39.6	50.4	89.8	91.2	91.9	93.9	97.3	98.6	99.6	101.9	109.4	–
Norway	36.2	57.0	66.6	90.4	89.5	94.0	93.2	93.8	96.8	96.2	100.4	102.2	103.1
Sweden	27.6	52.8	62.1	87.2	88.6	90.1	90.8	93.8	95.0	95.0	106.7	115.7	119.6
United Kingdom	30.5	43.7	51.9	71.9	74.7	78.8	83.1	87.1	90.1	94.4	105.4	109.4	109.4
Output													
United States	–	–	–	87.6	88.5	94.9	99.9	100.8	100.4	98.5	105.0	112.3	116.2
Canada	34.2	61.0	77.6	98.5	99.3	104.1	109.4	110.3	106.2	98.7	104.8	112.1	117.2
Japan	10.7	38.8	50.0	76.1	74.9	78.4	84.6	90.2	96.3	101.4	96.0	94.8	97.8
Belgium	32.2	60.3	74.0	88.1	88.1	88.4	92.8	98.4	99.6	100.0	97.1	101.5	–
Denmark	40.1	66.8	78.1	101.7	101.7	97.6	99.1	100.3	99.3	99.2	100.7	102.8	106.1
France	32.4	66.9	80.1	91.2	91.2	91.1	96.3	101.6	103.5	101.7	96.2	101.3	104.6
Germany	41.5	70.9	78.5	88.3	89.7	88.0	90.9	94.0	99.1	102.8	92.0	94.1	94.6
Italy	21.5	44.8	54.1	82.6	84.8	88.5	94.8	98.6	100.4	99.7	96.6	101.4	107.3
Netherlands	32.8	61.8	70.2	86.0	88.1	89.3	92.7	96.9	100.1	100.6	97.8	101.4	–
Norway	56.6	89.2	102.3	109.8	109.8	111.9	106.5	100.5	100.4	97.0	102.4	108.0	111.1
Sweden	46.4	81.6	88.5	104.0	105.3	107.7	110.2	111.7	110.6	103.5	101.3	115.3	126.1
United Kingdom	68.4	91.2	100.6	89.9	91.1	95.3	102.0	106.6	106.4	100.6	101.2	105.5	107.6
Total hours													
United States	92.2	104.5	110.5	104.7	103.1	103.9	106.9	107.3	104.9	100.6	101.4	103.8	103.9
Canada	84.5	100.9	107.5	104.8	107.2	111.4	116.5	117.0	110.8	102.5	102.9	106.2	109.3
Japan	76.3	102.3	104.0	98.4	97.3	96.6	99.8	100.8	100.9	102.0	95.6	93.7	91.7
Belgium	172.1	176.3	165.7	103.0	101.6	100.0	101.5	102.3	104.3	101.3	93.2	92.2	–
Denmark	135.8	128.3	118.1	106.5	113.1	109.0	106.6	104.3	103.3	101.3	94.7	–	–
France	140.6	147.0	148.7	108.9	107.2	105.1	104.0	104.4	104.5	103.0	94.5	91.8	91.9
Germany	143.0	136.6	128.9	99.6	100.4	99.9	99.6	99.7	101.0	101.1	90.9	86.8	84.5
Italy	109.6	121.8	123.4	101.4	102.7	104.1	109.5	110.2	108.2	104.6	92.4	94.8	96.4
Netherlands	165.3	156.2	139.4	95.8	96.6	97.2	98.7	99.6	101.6	101.0	95.9	92.7	–
Norway	156.3	156.6	153.5	121.5	122.7	119.0	114.3	107.1	103.7	100.8	102.1	105.7	107.8
Sweden	168.3	154.7	142.5	119.3	118.8	119.5	121.4	119.0	116.4	109.0	95.0	99.6	105.4
United Kingdom	224.4	208.6	194.0	125.1	121.9	120.9	122.7	122.3	118.0	106.6	96.0	96.4	98.3
Compensation per hour													
United States	14.9	23.8	28.6	75.3	78.6	80.8	84.0	86.7	90.9	95.7	102.4	105.1	108.0
Canada	10.5	18.3	22.9	74.6	77.5	79.8	83.3	86.4	91.3	97.1	100.1	102.4	103.7
Japan	4.3	16.5	26.8	72.5	76.1	77.9	79.2	84.2	90.7	95.9	104.6	106.8	110.3
Belgium	5.5	14.1	21.6	74.1	77.2	79.0	80.6	84.8	89.6	95.3	105.0	108.4	–
Denmark	4.6	13.2	20.4	71.4	72.9	79.7	82.5	87.2	92.6	96.2	102.4	–	–
France	4.3	10.5	14.9	73.8	76.9	79.7	82.8	87.2	91.8	96.3	103.6	106.2	107.9
Germany	8.1	20.7	29.0	70.0	73.0	76.4	79.3	83.1	89.0	95.0	106.0	110.5	116.1
Italy	1.6	4.6	7.0	60.1	62.6	66.1	68.7	75.5	84.0	93.1	107.1	106.4	109.7
Netherlands	6.5	20.5	31.9	82.0	85.2	87.9	87.6	88.4	90.8	95.0	104.6	106.1	–
Norway	4.7	11.7	16.7	62.7	68.7	78.5	83.3	87.2	92.3	97.5	101.5	104.8	109.4
Sweden	4.1	10.8	15.2	58.6	63.4	67.6	72.0	79.6	87.8	95.7	97.8	101.8	107.3
United Kingdom	3.1	6.5	9.8	55.8	60.6	67.3	71.7	75.4	83.7	93.4	105.3	107.4	110.9
Unit labor costs: National currency basis													
United States	–	–	–	89.9	91.6	88.5	89.8	92.2	95.0	97.7	98.8	97.2	96.6
Canada	25.9	30.3	31.8	79.3	83.6	85.3	88.7	91.7	95.2	100.9	98.3	97.0	96.7
Japan	30.9	43.3	55.7	93.8	99.0	96.0	93.4	94.0	95.0	96.5	104.1	105.6	103.4
Belgium	29.7	41.1	48.3	86.7	89.0	89.3	88.2	88.2	93.7	96.5	100.7	98.5	–
Denmark	15.5	25.3	30.8	74.7	81.0	89.0	88.8	90.7	96.5	98.3	96.3	97.8	101.3
France	18.8	23.1	27.7	88.1	90.3	92.0	89.3	89.6	92.7	97.5	101.8	96.2	94.9
Germany	28.0	40.0	47.7	79.0	81.7	86.7	86.9	88.2	90.6	93.3	104.7	101.8	103.7
Italy	8.0	12.6	16.0	73.8	75.8	77.8	79.4	84.4	90.5	97.7	102.5	99.5	98.6
Netherlands	32.9	51.8	63.4	91.3	93.4	95.7	93.3	90.8	92.1	95.4	102.6	97.0	–
Norway	12.9	20.5	25.1	69.4	76.8	83.5	89.3	93.0	95.4	101.3	101.1	102.6	106.1
Sweden	15.0	20.6	24.5	67.3	71.5	74.9	79.2	84.9	92.5	100.7	91.7	88.0	89.7
United Kingdom	10.3	14.8	19.0	77.6	81.1	85.4	86.2	86.5	92.8	98.9	99.9	98.1	101.3
Unit labor costs: U.S. dollar basis													
United States	–	–	–	89.9	91.6	88.5	89.8	92.2	95.0	97.7	98.8	97.2	96.6
Canada	32.3	35.1	38.4	70.1	72.7	77.8	87.1	93.6	98.6	106.4	92.1	85.8	85.1
Japan	10.9	15.3	26.1	49.9	74.5	84.2	92.4	86.3	83.1	90.9	118.8	131.0	139.5
Belgium	19.1	26.6	40.0	47.0	64.1	76.9	77.1	72.0	90.2	90.7	93.6	94.7	–
Denmark	13.5	20.4	30.9	42.6	60.4	78.4	79.5	74.8	94.1	92.7	89.6	92.9	109.2
France	20.3	22.1	33.0	51.9	69.0	81.0	79.4	74.3	90.1	91.4	95.1	91.8	100.8
Germany	10.5	17.1	28.1	41.9	58.8	75.3	77.3	73.2	87.6	87.8	98.9	98.1	113.1
Italy	15.9	24.7	34.0	47.6	62.6	73.9	75.1	75.8	93.0	97.0	80.3	76.1	74.6
Netherlands	15.3	25.2	40.1	48.4	67.1	83.0	83.0	75.3	88.9	89.6	97.1	93.8	–
Norway	11.3	17.8	27.2	50.2	64.5	77.0	85.1	83.6	94.8	97.0	88.5	90.4	104.0
Sweden	16.9	23.1	32.8	45.6	58.4	68.8	75.2	76.6	90.9	97.0	68.5	66.4	73.2
United Kingdom	16.3	20.0	26.3	57.0	67.4	79.2	86.9	80.2	93.8	99.0	85.0	85.1	90.6

– Data not available.

45. Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]									
	1985	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]
PRIVATE SECTOR[5]										
Total cases	7.9	7.9	8.3	8.6	8.6	8.8	8.4	8.9	8.5	8.4
Lost workday cases	3.6	3.6	3.8	4.0	4.0	4.1	3.9	3.9	3.8	3.8
Lost workdays	64.9	65.8	69.9	76.1	78.7	84.0	86.5	93.8	–	–
Agriculture, forestry, and fishing[5]										
Total cases	11.4	11.2	11.2	10.9	10.9	11.6	10.8	11.6	11.2	10.0
Lost workday cases	5.7	5.6	5.7	5.6	5.7	5.9	5.4	5.4	5.0	4.7
Lost workdays	91.3	93.6	94.1	101.8	100.9	112.2	108.3	126.9	–	–
Mining										
Total cases	8.4	7.4	8.5	8.8	8.5	8.3	7.4	7.3	6.8	6.3
Lost workday cases	4.8	4.1	4.9	5.1	4.8	5.0	4.5	4.1	3.9	3.9
Lost workdays	145.3	125.9	144.0	152.1	137.2	119.5	129.6	204.7	–	–
Construction										
Total cases	15.2	15.2	14.7	14.6	14.3	14.2	13.0	13.1	12.2	11.8
Lost workday cases	6.8	6.9	6.8	6.8	6.8	6.7	6.1	5.8	5.5	5.5
Lost workdays	128.9	134.5	135.8	142.2	143.3	147.9	148.1	161.9	–	–
General building contractors:										
Total cases	15.2	14.9	14.2	14.0	13.9	13.4	12.0	12.2	11.5	10.9
Lost workday cases	6.8	6.6	6.5	6.4	6.5	6.4	5.5	5.4	5.1	5.1
Lost workdays	120.4	122.7	134.0	132.2	137.3	137.6	132.0	142.7	–	–
Heavy construction, except building:										
Total cases	14.5	14.7	14.5	15.1	13.8	13.8	12.8	12.1	11.1	10.2
Lost workday cases	6.3	6.3	6.4	7.0	6.5	6.3	6.0	5.4	5.1	5.0
Lost workdays	127.3	132.9	139.1	162.3	147.1	144.6	160.1	165.8	–	–
Special trades contractors:										
Total cases	15.4	15.6	15.0	14.7	14.6	14.7	13.5	13.8	12.8	12.5
Lost workday cases	7.0	7.2	7.1	7.0	6.9	6.9	6.3	6.1	5.8	5.8
Lost workdays	133.3	140.4	135.7	141.1	144.9	153.1	151.3	168.3	–	–
Manufacturing										
Total cases	10.4	10.6	11.9	13.1	13.1	13.2	12.7	12.5	12.1	12.2
Lost workday cases	4.6	4.7	5.3	5.7	5.8	5.8	5.6	5.4	5.3	5.5
Lost workdays	80.2	85.2	95.5	107.4	113.0	120.7	121.5	124.6	–	–
Durable goods:										
Total cases	10.9	11.0	12.5	14.2	14.1	14.2	13.6	13.4	13.1	13.5
Lost workday cases	4.7	4.8	5.4	5.9	6.0	6.0	5.7	5.5	5.4	5.7
Lost workdays	82.0	87.1	96.8	111.1	116.5	123.3	122.9	126.7	–	–
Lumber and wood products:										
Total cases	18.5	18.9	18.9	19.5	18.4	18.1	16.8	16.3	15.9	15.7
Lost workday cases	9.3	9.7	9.6	10.0	9.4	8.8	8.3	7.6	7.6	7.7
Lost workdays	171.4	177.2	176.5	189.1	177.5	172.5	172.0	165.8	–	–
Furniture and fixtures:										
Total cases	15.0	15.2	15.4	16.6	16.1	16.9	15.9	14.8	14.6	15.0
Lost workday cases	6.3	6.3	6.7	7.3	7.2	7.8	7.2	6.6	6.5	7.0
Lost workdays	100.4	103.0	103.6	115.7	–	–	–	128.4	–	–
Stone, clay, and glass products:										
Total cases	13.9	13.6	14.9	16.0	15.5	15.4	14.8	13.6	13.8	13.2
Lost workday cases	6.7	6.5	7.1	7.5	7.4	7.3	6.8	6.1	6.3	6.5
Lost workdays	127.8	126.0	135.8	141.0	149.8	160.5	156.0	152.2	–	–
Primary metal industries:										
Total cases	12.6	13.6	17.0	19.4	18.7	19.0	17.7	17.5	17.0	16.8
Lost workday cases	5.7	6.1	7.4	8.2	8.1	8.1	7.4	7.1	7.3	7.2
Lost workdays	113.8	125.5	145.8	161.3	168.3	180.2	169.1	175.5	–	–
Fabricated metal products:										
Total cases	16.3	16.0	17.0	18.8	18.5	18.7	17.4	16.8	16.2	16.4
Lost workday cases	6.9	6.8	7.2	8.0	7.9	7.9	7.1	6.6	6.7	6.7
Lost workdays	110.1	115.5	121.9	138.8	147.6	155.7	146.6	144.0	–	–
Industrial machinery and equipment:										
Total cases	10.8	10.7	11.3	12.1	12.1	12.0	11.2	11.1	11.1	11.6
Lost workday cases	4.2	4.2	4.4	4.7	4.8	4.7	4.4	4.2	4.2	4.4
Lost workdays	69.3	72.0	72.7	82.8	86.8	88.9	86.6	87.7	–	–
Electronic and other electrical equipment:										
Total cases	6.4	6.4	7.2	8.0	9.1	9.1	8.6	8.4	8.3	8.3
Lost workday cases	2.7	2.7	3.1	3.3	3.9	3.8	3.7	3.6	3.5	3.6
Lost workdays	45.7	49.8	55.9	64.6	77.5	79.4	83.0	81.2	–	–
Transportation equipment:										
Total cases	9.0	9.6	13.5	17.7	17.7	17.8	18.3	18.7	18.5	19.6
Lost workday cases	3.9	4.1	5.7	6.6	6.8	6.9	7.0	7.1	7.1	7.8
Lost workdays	71.6	79.1	105.7	134.2	138.6	153.7	166.1	186.6	–	–
Instruments and related products:										
Total cases	5.2	5.3	5.8	6.1	5.6	5.9	6.0	5.9	5.6	5.9
Lost workday cases	2.2	2.3	2.4	2.6	2.5	2.7	2.7	2.7	2.5	2.7
Lost workdays	37.9	42.2	43.9	51.5	55.4	57.8	64.4	65.3	–	–
Miscellaneous manufacturing industries:										
Total cases	9.7	10.2	10.7	11.3	11.1	11.3	11.3	10.7	10.0	9.9
Lost workday cases	4.2	4.3	4.6	5.1	5.1	5.1	5.1	5.0	4.6	4.5
Lost workdays	73.2	70.9	81.5	91.0	97.6	113.1	104.0	108.2	–	–

See footnotes at end of table.

45. Continued—Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]									
	1985	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]
Nondurable goods:										
Total cases	9.6	10.0	11.1	11.4	11.6	11.7	11.5	11.3	10.7	10.5
Lost workday cases	4.4	4.6	5.1	5.4	5.5	5.6	5.5	5.3	5.0	5.1
Lost workdays	77.6	82.3	93.5	101.7	107.8	116.9	119.7	121.8	–	–
Food and kindred products:										
Total cases	16.7	16.5	17.7	18.5	18.5	20.0	19.5	18.8	17.6	17.1
Lost workday cases	8.1	8.0	8.6	9.2	9.3	9.9	9.9	9.5	8.9	9.2
Lost workdays	138.0	137.8	153.7	169.7	174.7	202.6	207.2	211.9	–	–
Tobacco products:										
Total cases	7.3	6.7	8.6	9.3	8.7	7.7	6.4	6.0	5.8	5.3
Lost workday cases	3.0	2.5	2.5	2.9	3.4	3.2	2.8	2.4	2.3	2.4
Lost workdays	51.7	45.6	46.4	53.0	64.2	62.3	52.0	42.9	–	–
Textile mill:										
Total cases	7.5	7.8	9.0	9.6	10.3	9.6	10.1	9.9	9.7	8.7
Lost workday cases	3.0	3.1	3.6	4.0	4.2	4.0	4.4	4.2	4.1	4.0
Lost workdays	57.4	59.3	65.9	78.8	81.4	85.1	88.3	87.1	–	–
Apparel and other textile products:										
Total cases	6.7	6.7	7.4	8.1	8.6	8.8	9.2	9.5	9.0	8.9
Lost workday cases	2.6	2.7	3.1	3.5	3.8	3.9	4.2	4.0	3.8	3.9
Lost workdays	44.1	49.4	59.5	68.2	80.5	92.1	99.9	104.6	–	–
Paper and allied products:										
Total cases	10.2	10.5	12.8	13.1	12.7	12.1	11.2	11.0	9.9	9.6
Lost workday cases	4.7	4.7	5.8	5.9	5.8	5.5	5.0	5.0	4.6	4.5
Lost workdays	94.6	99.5	122.3	124.3	132.9	124.8	122.7	125.9	–	–
Printing and publishing:										
Total cases	6.3	6.5	6.7	6.6	6.9	6.9	6.7	7.3	6.9	6.7
Lost workday cases	2.9	2.9	3.1	3.2	3.3	3.3	3.2	3.2	3.1	3.0
Lost workdays	49.2	50.8	55.1	59.8	63.8	69.8	74.5	74.8	–	–
Chemicals and allied products:										
Total cases	5.1	6.3	7.0	7.0	7.0	6.5	6.4	6.0	5.9	5.7
Lost workday cases	2.3	2.7	3.1	3.3	3.2	3.1	3.1	2.8	2.7	2.8
Lost workdays	38.8	49.4	58.8	59.0	63.4	61.6	62.4	64.2	–	–
Petroleum and coal products:										
Total cases	5.1	7.1	7.3	7.0	6.6	6.6	6.2	5.9	5.2	4.7
Lost workday cases	2.4	3.2	3.1	3.2	3.3	3.1	2.9	2.8	2.5	2.3
Lost workdays	49.9	67.5	65.9	68.4	68.1	77.3	68.2	71.2	–	–
Rubber and miscellaneous plastics products:										
Total cases	13.4	14.0	15.9	16.3	16.2	16.2	15.1	14.5	13.9	14.0
Lost workday cases	6.3	6.6	7.6	8.1	8.0	7.8	7.2	6.8	6.5	6.7
Lost workdays	107.4	118.2	130.8	142.9	147.2	151.3	150.9	153.3	–	–
Leather and leather products:										
Total cases	10.3	10.5	12.4	11.4	13.6	12.1	12.5	12.1	12.1	12.0
Lost workday cases	4.6	4.8	5.8	5.6	6.5	5.9	5.9	5.4	5.5	5.3
Lost workdays	88.3	83.4	114.5	128.2	130.4	152.3	140.8	128.5	–	–
Transportation and public utilities										
Total cases	8.6	8.2	8.4	8.9	9.2	9.6	9.3	9.1	9.5	9.3
Lost workday cases	5.0	4.8	4.9	5.1	5.3	5.5	5.4	5.1	5.4	5.5
Lost workdays	107.1	102.1	108.1	118.6	121.5	134.1	140.0	144.0	–	–
Wholesale and retail trade										
Total cases	7.4	7.7	7.7	7.8	8.0	7.9	7.8	8.4	8.1	7.9
Lost workday cases	3.2	3.3	3.4	3.5	3.6	3.5	3.4	3.5	3.4	3.4
Lost workdays	50.7	54.0	56.1	60.9	63.5	65.6	72.0	80.1	–	–
Wholesale trade:										
Total cases	7.2	7.2	7.4	7.6	7.7	7.4	7.2	7.6	7.8	7.7
Lost workday cases	3.5	3.6	3.7	3.8	4.0	3.7	3.7	3.6	3.7	3.8
Lost workdays	59.8	62.5	64.0	69.2	71.9	71.5	79.2	82.4	–	–
Retail trade:										
Total cases	7.5	7.8	7.8	7.9	8.1	8.1	7.7	8.7	8.2	7.9
Lost workday cases	3.1	3.2	3.3	3.4	3.4	3.4	3.3	3.4	3.3	3.3
Lost workdays	47.0	50.5	52.9	57.6	60.0	63.2	69.1	79.2	–	–
Finance, insurance, and real estate										
Total cases	2.0	2.0	2.0	2.0	2.0	2.4	2.4	2.9	2.9	2.7
Lost workday cases	.9	.9	.9	.9	.9	1.1	1.1	1.2	1.2	1.1
Lost workdays	15.4	17.1	14.3	17.2	17.6	27.3	24.1	32.9	–	–
Services										
Total cases	5.4	5.3	5.5	5.4	5.5	6.0	6.2	7.1	6.7	6.5
Lost workday cases	2.6	2.5	2.7	2.6	2.7	2.8	2.8	3.0	2.8	2.8
Lost workdays	45.4	43.0	45.8	47.7	51.2	56.4	60.0	68.6	–	–

[1] Data for 1989 and subsequent years are based on the *Standard Industrial Classification Manual*, 1987 Edition. For this reason, they are not strictly comparable with data for the years 1985–88, which were based on the *Standard Industrial Classification Manual*, 1972 Edition, 1977 Supplement.

[2] Beginning with the 1992 survey, the annual survey measures only nonfatal injuries and illnesses, while past surveys covered both fatal and nonfatal incidents. To better address fatalities, a basic element of workplace safety, BLS implemented the Census of Fatal Occupational Injuries.

[3] The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as (N/EH) X 200,000, where:
N = number of injuries and illnesses or lost workdays;
EH = total hours worked by all employees during the calendar year; and
200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

[4] Beginning with the 1993 survey, lost workday estimates will not be generated. As of 1992, BLS began generating percent distributions and the median number of days away from work by industry and for groups of workers sustaining similar work disabilities.

[5] Excludes farms with fewer than 11 employees since 1976.

– Data not available.

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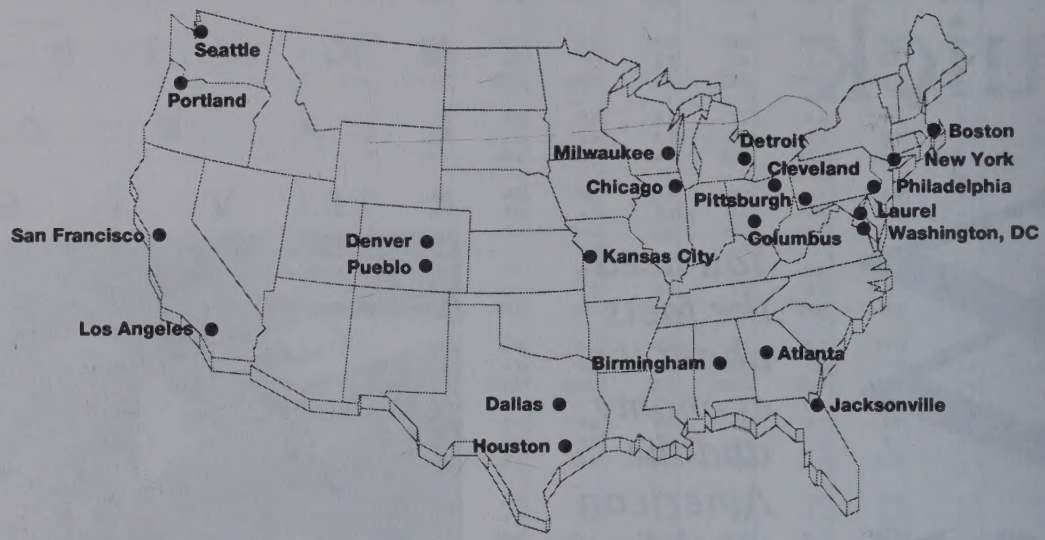

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Real earnings	November 14	October	December 12	November	January 14	December	13-16
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